LETTING DATE 06/15/10

DYNAMIC MESSAGE SIGNS
ITS-000-S(406)--25-31

DUBUQUE Co.

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For Standard Road Plans
Refer to Sheet No. C.01

Iowa Department of Transportation
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM

DUBUQUE COUNTY

DYNAMIC MESSAGE SIGNS

Various locations in the City of Dubuque

SCALES: As Noted

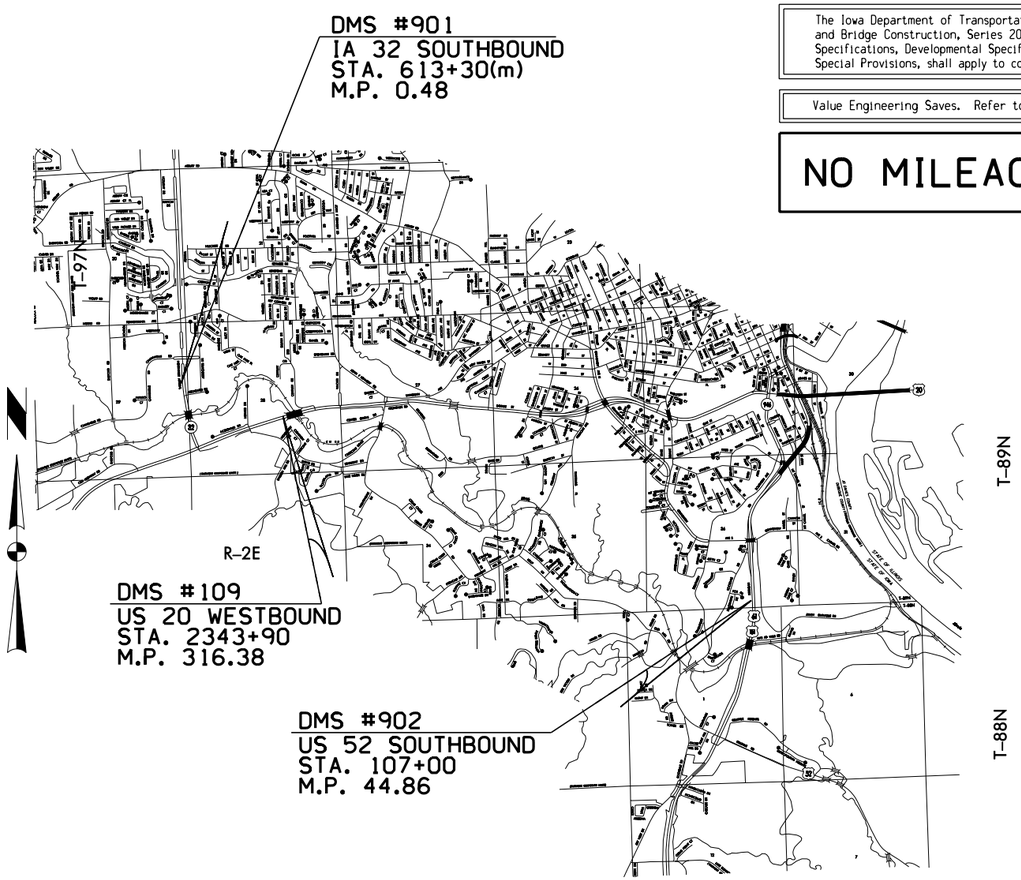
The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2009, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions, shall apply to construction work on this project.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

NO MILEAGE SUMMARY

TOTAL
32
PROJECT IDENTIFICATION NUMBER
10-03-076-010
PROJECT NUMBER
ITS-000-S(406)--25-31

INDEX OF SHEETS



LOCATION MAP SCALE
0 0.5 1 1.5
Miles

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.01	John M. Narigon	Primary Signature Block
V.1	James R. Hauber	Structural Details

LICENSED PROFESSIONAL ENGINEER
John M. Narigon
11842
IOWA

I hereby certify that this plan was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — Date: 04/06/2009

Printed or Typed Name: John M. Narigon

My license renewal date is December 31, 2011

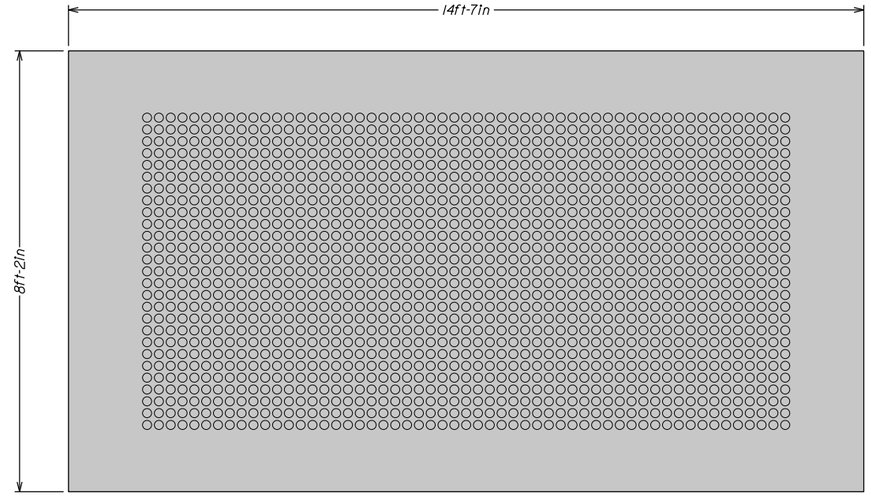
Pages or sheets covered by this seal:
A.01, B.01-B.06, C.01-C.04, N.01-N.03, X.01-X.03

DIMENSIONAL INFORMATION

Manufacturer: Skyline
Model Number: VMSLED-L-3-18F-27X55-I
Type: Full Matrix
Pixels: 55 x 27 (width x height)

Height: 8'2"
Width: 14'7"
Depth: 1'4"

Weight: 1500 lbs.



TRANSPORTATION REQUIREMENTS

All material and equipment necessary to transport the sign to or from the storage site and/or installation site shall be furnished by the Contractor.

The sign shall be transported in the upright position. At no point in time shall the sign be laid on its side, front, or back.

To avoid damage to the sign during transport, consult the sign manufacturer to determine the correct method to secure the sign to the trailer.

Any damage incurred during transportation shall be the responsibility of the Contractor.

STORAGE REQUIREMENTS

All material and equipment necessary to store the sign at the designated site shall be furnished by the Contractor.

The sign shall be stored upright and level. At no point in time shall the sign be laid on its side, front, or back.

The sign must be blocked up at least three inches from the ground. When the sign is not stored on concrete, extra blocking shall be used to provide for settlement.

Remove shipping support legs from the DMS after installation on the support structure.

During transportation and storage, the DMS shall be secured at all times to prevent tipping. The DMS shall be secured with dead man anchors or other suitable methods. The DMS shall not be marred by the selected method. Tipping may be caused by any number of reasons, but high winds and other weather related events are the primary concern while the DMS is on the ground.

Any damage resulting from the failure to properly secure the DMS shall be the responsibility of the Contractor.

ATTACHMENT HARDWARE

All materials necessary to attach the DMS to the support structure will be furnished with the DMS.

LIFTING REQUIREMENTS

The following procedures shall be followed when lifting the sign for either removal or installation, including lifting the sign from the storage site to the trailer or the reverse, and from the trailer to the support structure or the reverse.

The crane and lifting bar shall be rated to lift a minimum of 2000 pounds.

Any damage incurred during lifting shall be the responsibility of the Contractor.

The information presented below is from the literature provided by the manufacturer. Consult the manufacturer for complete lifting requirements.

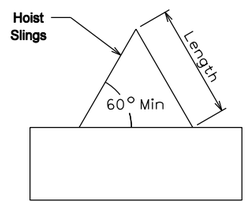
** Skyline Sign Lift Procedure **

When removing an existing sign, the pick angles or lifting brackets may need to be furnished by the Contractor. Consult Skyline for specific information about the pick angle or lifting bracket requirements.

1. When the sign arrives, it should remain secured at all times, either to the trailer or to the crane, until fully mounted on the sign support structure or until secured to the ground.

2. Remove the strapping blocks from the top of the sign to free the brackets to in order to attach the lifting sling.

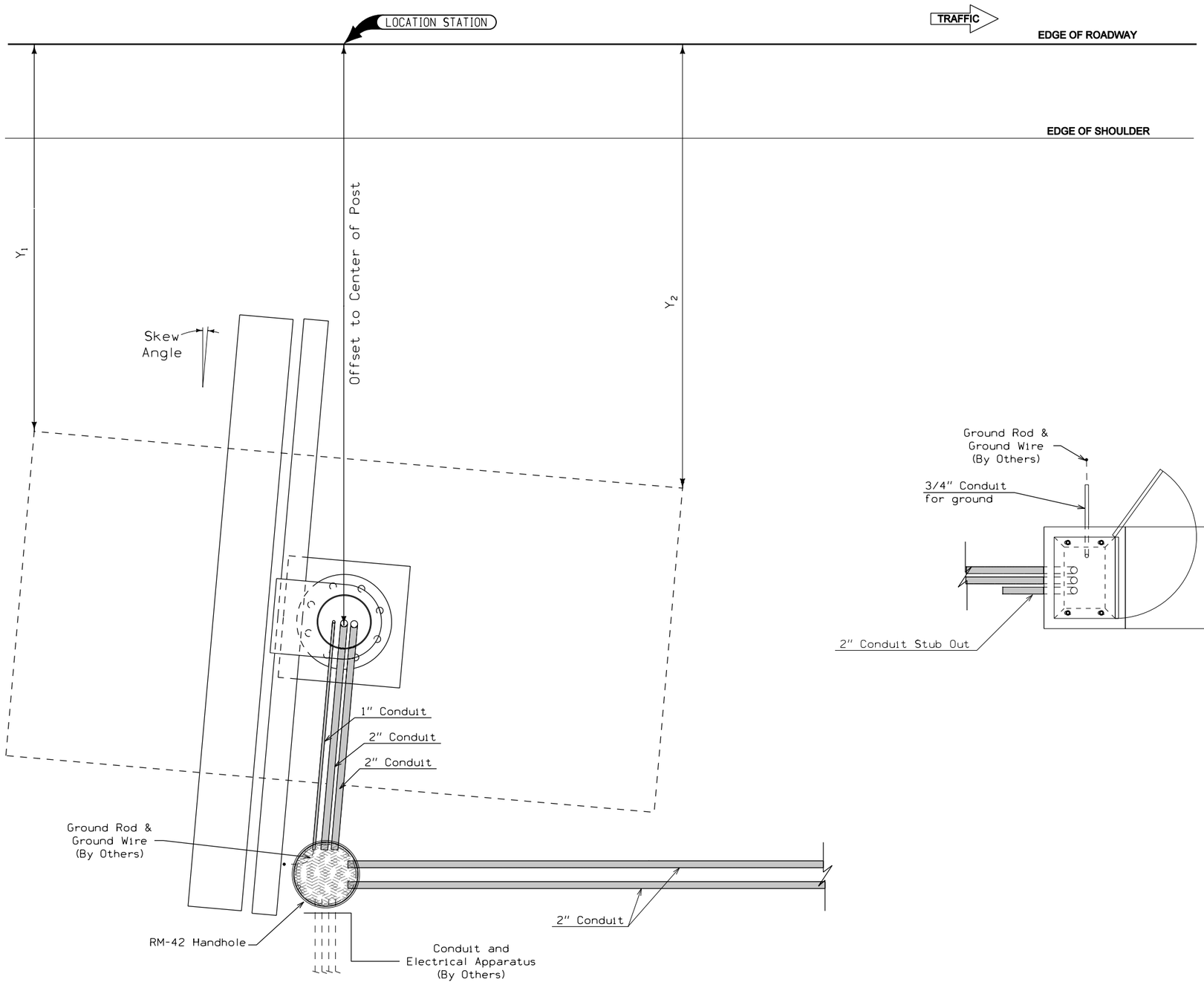
3. Secure the crane's lifting slings to the sign using the appropriate sling length. Attach the slings to the pick angles on the top of the sign using the appropriate spreader bars and/or clevises. Calculate the hoisting sling's length by measuring the distance between the pick angles and a minimum 60 inside angle with the sign.



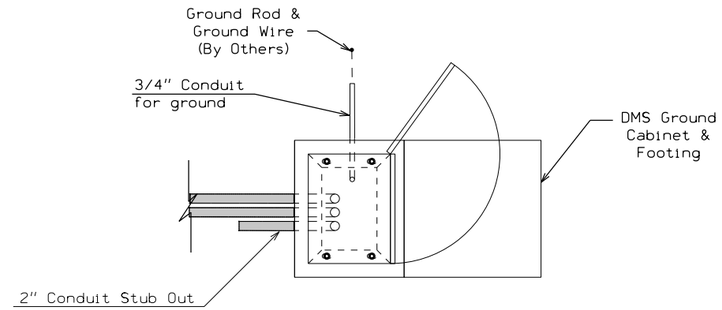
4. Lift the sign into position.

5. If applicable, remove any shipping support legs from the underside of the DMS, and lifting support angles from the top of the DMS. Plug and seal all openings as per the manufacturer's requirements. Any damage incurred by improperly sealed openings shall be the responsibility of the Contractor.

DETAILS OF ROADSIDE DYNAMIC MESSAGE SIGN



PLAN VIEW



SITE INSTALLATION NOTES:

Contractor is to install the sign footing, sign support structure, DMS, the ground cabinet footing, ground cabinet, RM-38 junction box, and conduit between the handhole and each footing.

All wiring for communications, electrical service, and grounding will be completed by the DOT.

The DOT will furnish the ground cabinet to be installed.

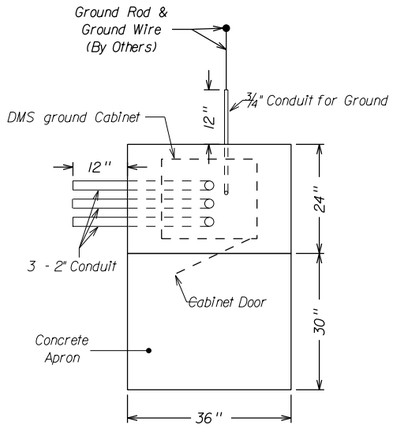
The ground cabinet footing shall be located within 25 feet of the RM-38 junction box, beside or behind the DMS and oriented as indicated relative to traffic. In locations with a ditch, the footing shall not be located within the ditch bottom, but should be located beyond the top of the backslope, if possible. The Engineer shall approve the location and orientation prior to placement of the footing.

Install socket type bell ends on conduit protruding from the footing. Finished conduit (including bell end) is to protrude 5 to 6 inches from the top of footing.

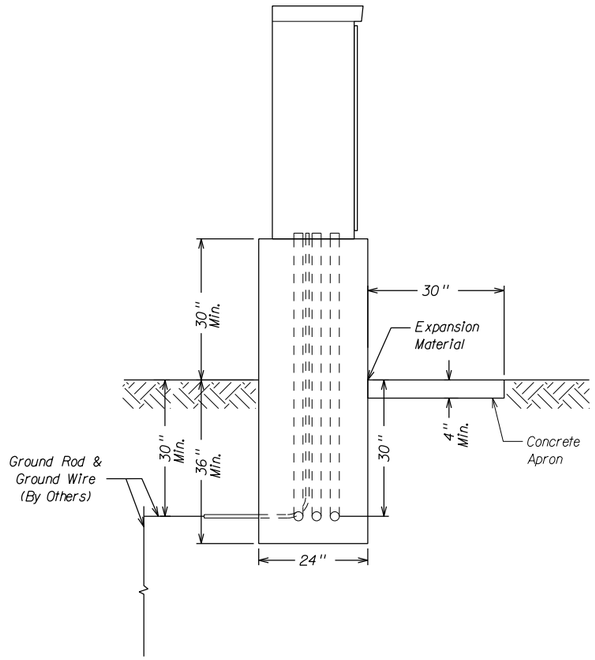
Mark the locations of all conduit entering the sign support structure footing and the ground cabinet footing. Locate marks on the side the conduit enters, near the top, to ensure visibility after backfilling and shaping.

Install handhole and conduit and complete site restoration per section 2523.

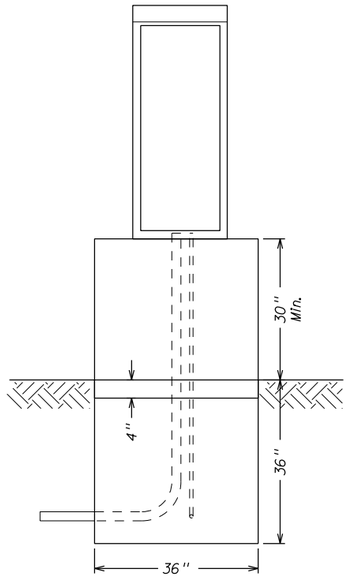
SITE INSTALLATION DETAILS FOR ROADSIDE DYNAMIC MESSAGE SIGN



Top View



Side View



Front View

Center DMS Cabinet on footing and attach with pull out anchors. Refer to IM 453.09 for approved anchors.

Center conduits in the footing. Prior to pouring the footing, confirm that no conflicts exist between the conduit placement and the ground cabinet. Maintain at least 2" of clearance to the edge of the ground cabinet.

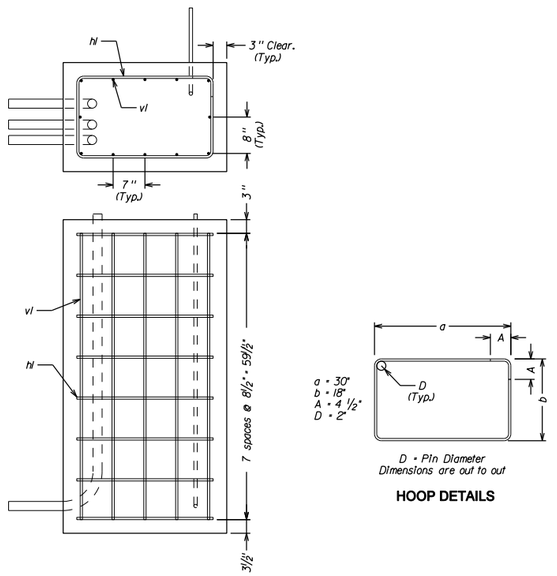
Cap all open ends of conduit before backfilling. For future reference, mark the locations of all conduit entering the footing on the side which the conduit enters. Locate marks near the top to ensure they remain visible after backfilling and shaping.

Install socket type bell ends on conduit protruding from the footing. Finished conduit (including bell end) is to protrude 5 to 6 inches from the top of footing.

Use Class C Structural Concrete for the footing. Meet the requirements of section 2403 for placement of the concrete. The top of the footing is to be level, and the top edges rounded with an edger. Provide forms of sufficient strength to prevent warping, bulging, or other deflections.

Epoxy coated reinforcement to meet the requirements of section 2404.

Conduit, excavation, backfilling, and site restoration to meet the requirements of section 2523.



HOOP DETAILS

Reinforcing Details

EPOXY COATED REINFORCEMENT QUANTITIES per footing				
BAR	QTY	SIZE	LENGTH	WEIGHT
v1	12	#4	59½	39.8
h1	7	#4	105	46.7
Total Weight				86.5

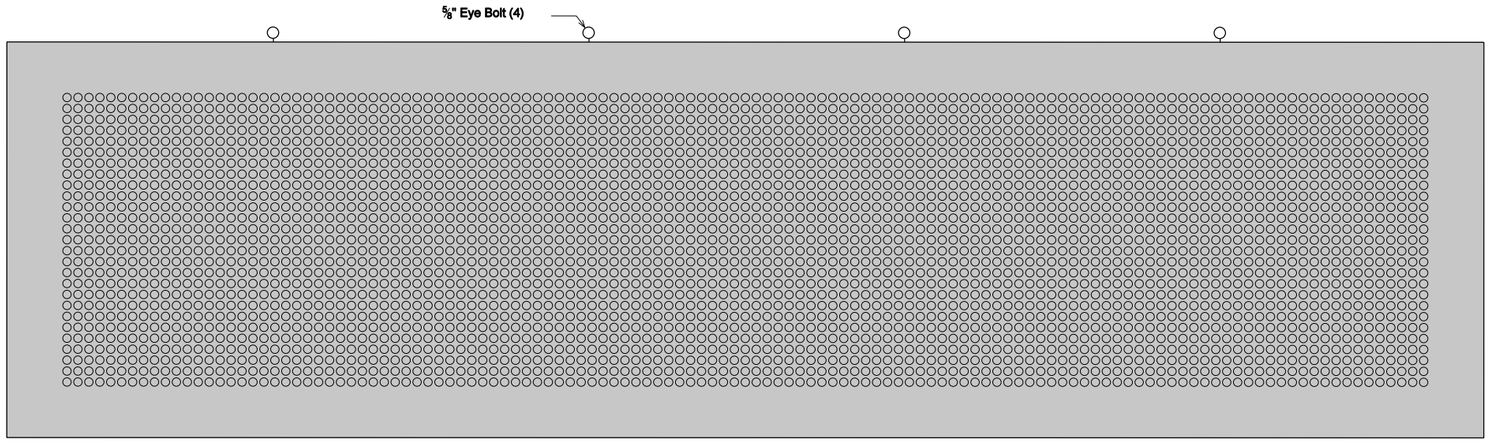
CONCRETE QUANTITIES per footing location	
Footing	1.22 cu yd
Pad	0.09 cu yd

DMS GROUND CABINET FOOTING DETAILS

DIMENSIONAL INFORMATION

Type: Full Matrix
Pixels: 125 x 27 (width x height)

Max. Height: 8'0"
Max. Width: 30' 0"
Max. Depth: 4'0"
Max. Weight: 4000 lbs



STORAGE LOCATION

Iowa Department of Transportation
Dubuaue Maintenance Facility
11000 US 61 S.
Dubuque, IA 52004

Phone: (563) 582-3063

TRANSPORTATION REQUIREMENTS

All material and equipment necessary to transport the sign to or from the storage site shall be furnished by the Contractor.

The sign shall be transported in the upright posititon. At no point in time shall the sign be laid on its side, front, or back.

To avoid damage to the sign during tranport, consult the sign manufacturer to determine the correct method to secure the sign to the trailer. Any damage incurred duing transportation shall be the responsibility of the Contractor.

STORAGE REQUIREMENTS

All material and equipment necessary to store the sign at the designated site shall be furnished by the Contractor.

The sign shall be stored upright and level. At no point in time shall the sign be laid on its side, front, or back.

The sign must be blocked up at least three inches from the ground. When the sign is not to on concrete, extra blocking should be used to provide for settlement.

To avoid damaging the bottom skin of the housing, blocking shall be placed directly beneath the sign's internal structural supports.

Remove all blocking from the DMS after installation on the sign truss.

During transportation and storage, the DMS shall be secured at all times to prevent tipping. The DMS shall be secured with dead man anchors or other suitable methods. Ensure that the DMS is not marred by the selected method. Tipping may be caused by any number of reasons, but high winds and other weather related events are the primary concern while the DMS is on the ground.

Any damage resulting from the failure to properly secure the DMS shall be the responsibility of the Contractor.

ATTACHMENT HARDWARE

All materials necessary to attach the DMS to the support structure will be furnished with the DMS.

Dry fit the DMS to the sign truss to determine the actual attachment bracket locations. Adjust the brackets to avoid conflicts between the U Bolts and the internal members of the sign truss. Drill the bolt holes in the Z bracket on the back of the DMS after conflicts are resolved.

After installation of the DMS onto the truss, ensure that all unused hardware (bolts, nuts, washers, etc), construction materials, tools and such are removed from the structure. The Contractor is liable for any damages that result from materials falling into traffic.

LIFTING REQUIREMENTS

The following procedures should be followed when lifting the sign for either removal or installation. This includes lifting the sign from the storage site to the trailer or the reverse, and from the trailer to the support structure or the reverse.

The Contractor shall provide all equipment necessary to lift the DMS.

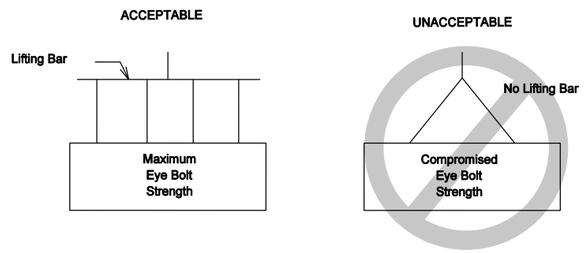
The crane and lifting bar shall be rated to lift the weight of the sign.

Any damage incurred during lifting shall be the responsibility of the Contractor.

Consult the manufaturer for complete lifting requirements.

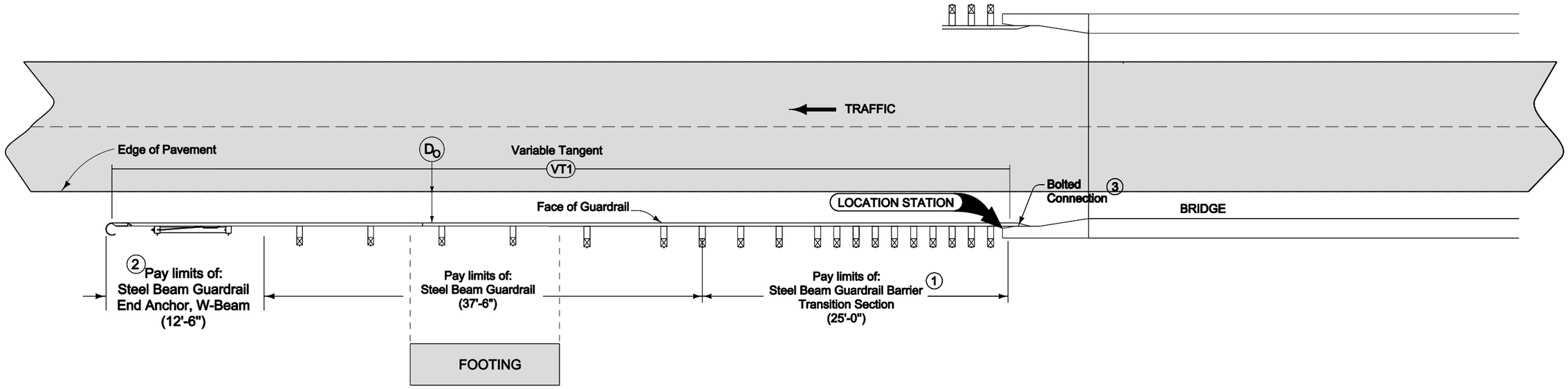
The eyebolts used to lift the sign shall be furnished by the Contractor.
The rated load of the eyebolts shall not be exceeded.
Consult manufacturer for specific information about the eyebolts.

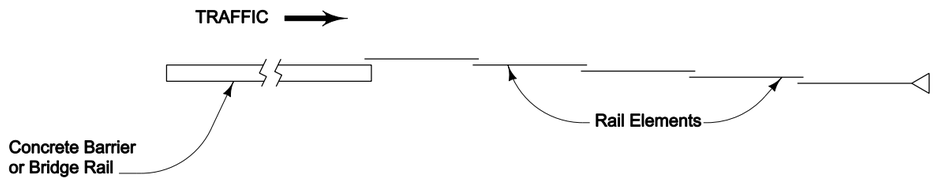
The figures illustrate the correct (left example) and the incorrect (right example) method of lifting a sign. Lift the sign with the lifting bar as shown on the left. Use every lifting point (eyebolt) provided. Not doing so may cause the eyebolts to fail.



After installation, plug and seal the eyebolt openings as per the manufacturer's requirements. Any damage incurred by improperly sealed openings shall be the responsibilty of the Contractor.

LARGE DYNAMIC MESSAGE SIGN TYPICAL DIMENSIONS AND CARE AND HANDLING REQUIREMENTS





LAPPING PROCEDURE

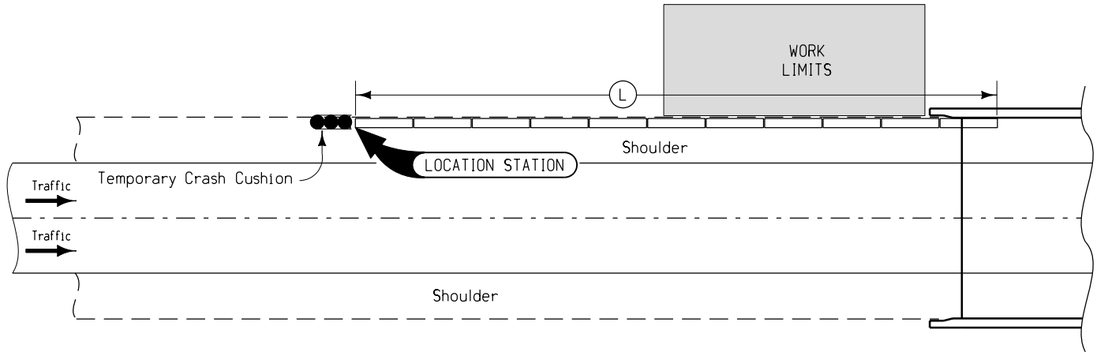
For general guardrail details, see BA-200.

1. See BA-201.
2. See BA-203.
3. See BA-202 for connections to concrete barriers and bridge end posts.

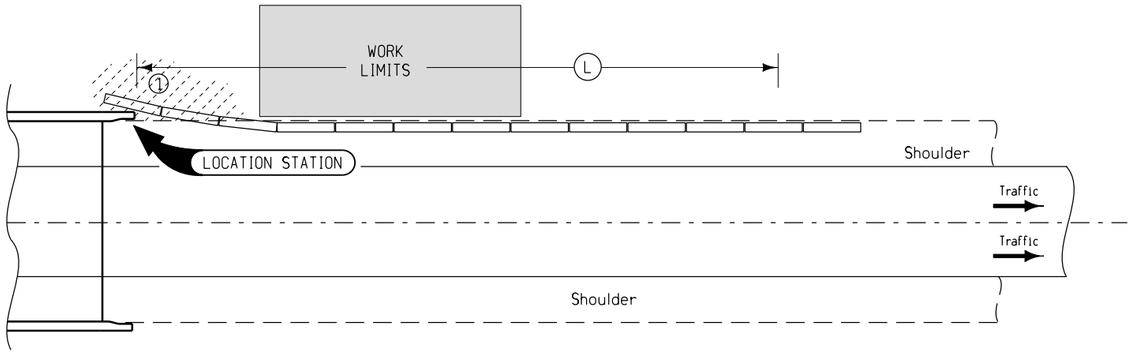
Possible Contract Items:
- Steel Beam Guardrail
- Steel Beam Guardrail Barrier Transition Section
- Steel Beam Guardrail End Anchor, Bolted
- Steel Beam Guardrail End Anchor, W-Beam

SPECIAL GUARDRAIL LAYOUT

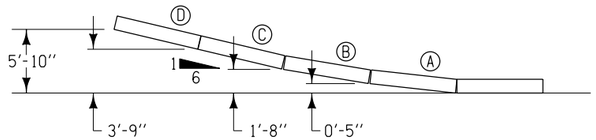
8210
MODIFIED



APPROACH SIDE

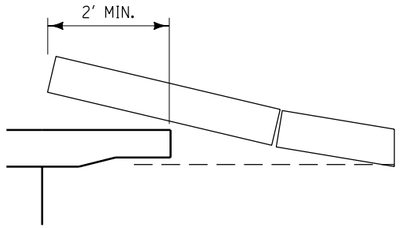


TRAILING SIDE



BARRIER OFFSETS FOR FLARE SECTIONS

PLACE FLARED SECTIONS AS NECESSARY TO ALIGN FIRST SECTION OF TBR BEHIND ENDPOST



PLACE TBR ON OUTERMOST 2' OF SHOULDER

(1) EMBANKMENT-IN-PLACE

Station	Side	Approach	Trailing	(L)	Embankment-in-Place
		X	X	Feet	Cu. Yd.
2342+75	M	X		210	
2344+48	M		X	100	10
2344+48	0		X	100	20

TEMPORARY CONCRETE BARRIER LAYOUT
for Work near Bridge

ESTIMATED PROJECT QUANTITIES

100-1A
07-15-97

Item No.	Item Code	Item	Unit	Total	As Built Quan.
1	2102-2625000	EMBANKMENT-IN-PLACE	CY	35.0	
2	2402-2720000	EXCAVATION, CLASS 20	CY	148	
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	63.4	
4	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	6,272	
5	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	237.5	
6	2505-4008300	STEEL BEAM GUARDRAIL	LF	125.0	
7	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	3	
8	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	3	
9	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM	EACH	2	
10	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	1	
11	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
12	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	410.0	
13	2528-8445110	TRAFFIC CONTROL	LS	1.00	
14	2528-8445113	FLAGGERS	EACH		
15	2528-9290004	CHANGEABLE MESSAGE SIGNS, PORTABLE	CDAY	1	
16	2533-4980005	MOBILIZATION	LS	1.00	
17	2551-0000110	TEMP CRASH CUSHION	EACH	2	
18	2599-9999005	GALVANIZED OVERHEAD SIGN TRUSS, 55'	EACH	1	
19	2599-9999005	OVERHEAD DMS, INSTALL ONLY	EACH	1	
20	2599-9999005	ROADSIDE DMS, INSTALL ONLY	EACH	2	
21	2599-9999005	STEEL ROADSIDE DMS SUPPORT	EACH	2	

STANDARD ROAD PLANS

105-4
04-20-10

The following Standard Road Plans shall be considered applicable to construction work on this project.

Number	Date	Title
BA-200	04-20-10	Steel Beam Guardrail Components
BA-201	04-20-10	Steel Beam Guardrail Barrier Transition Section
BA-202	04-20-10	Steel Beam Guardrail Bolted End Anchor
BA-203	04-20-10	Steel Beam Guardrail W-Beam End Anchor
BA-205	04-20-10	Steel Beam Guardrail End Terminal
BA-250	04-20-10	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post
BA-401	04-20-10	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-10	Temporary Crash Cushions Sand Barrel
RM-42	04-20-10	Precast Handhole
SI-173	04-20-10	Object Markers
SI-211	04-20-10	Object Marker and Delineator Placement with Guardrail
TC-1	10-17-06	Work Not Affecting Traffic
TC-402	04-20-10	Shoulder Closure (Multi-Lane)
TC-418	04-20-10	Lane Closure on Divided Highway
TC-451	10-21-08	Temporary Road Closure on Divided Highway

01-20-84 204-2

All holes resulting from operations of the contractor, including removal of guardrail posts, fence posts, utility poles, or foundation studies, shall be filled and consolidated to finished grade as directed by the engineer to prevent future settlement. The voids shall be filled as soon as practical - preferably the day created and not later than the following day. Any portion of the right-of-way or project limits (including borrow areas and operation sites) disturbed by any such operations shall be restored to an acceptable condition. This operation shall be considered incidental to other bid items in project.

04-15-08 213-1

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project.

It shall be the contractor's responsibility to ensure that areas (including haul roads) selected for waste or disposal not impact 1) culturally sensitive sites or graves or 2) wetlands or "Waters of the U.S.", including streams or stream banks below the "ordinary high water mark", without an approved U.S. Army Corps of Engineers Section 404 Permit.

No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans.

04-15-08 232-3B

EROSION CONTROL: (Urban Seeding)

Following completion of work in a disturbed area, the area shall be seeded, fertilized, and mulched as follows:

SEEDING MIXTURE: Seeding Rate: 4 lbs. per 1000 sq. ft.
Bluegrass, KY70%
Fescue, Creeping Red20%
Ryegrass, Perennial (Fineleaf-Derby Manhattan or equivalent.)10%

FERTILIZER:
17 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:
70 lbs. of dry cereal straw per 1000 sq. ft. All mulch shall be consolidated into the soil with a mulch stabilizer.

The preparation of the seedbed and the furnishing and application of seed, fertilizer, and mulch shall be considered incidental to mobilization and no extra compensation will be allowed.

04-15-08 232-3A

EROSION CONTROL: (Rural Seeding)

Following completion of work in a disturbed area, the area shall be seeded, fertilized, and mulched as follows:

SEEDING:

3 lbs. of Fescue or Fawn per 1000 sq. ft.

FERTILIZER:

17 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:

70 lbs. of dry cereal straw per 1000 sq. ft. All mulch shall be consolidated into the soil with a mulch stabilizer.

The preparation of the seedbed and the furnishing and application of seed, fertilizer, and mulch shall be considered incidental to mobilization and no extra compensation will be allowed.

01-20-84 232-5

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service area(s) will be subject to the approval of the resident engineer.

06-22-84 251-2

The contractor is hereby notified that removal of any existing traffic markers, warning devices or guardrail barriers shall be scheduled subject to the approval of the Engineer. The contractor may be required to place temporary warning devices at certain locations where replacement features are not installed the same day during which any such removals take place.

ESTIMATE OF QUANTITIES,
GENERAL NOTES, AND
STANDARD ROAD PLANS

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2102-2625000	EMBANKMENT-IN-PLACE REFER TO TABULATION 108-30 AND TYPICAL 8210. CONTRACTOR TO PROVIDE MATERIAL.
2	2402-2720000	EXCAVATION, CLASS 20 REFER TO TABULATIONS 190-51 AND 190-52.
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)
4	2404-7775005	REINFORCING STEEL, EPOXY COATED REFER TO TABULATIONS 190-51 AND 192-1 AND 'V' SHEETS FOR DETAILS.
5	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL REFER TO TABULATION 110-7A. MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE PROJECT.
6	2505-4008300	STEEL BEAM GUARDRAIL
7	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION
8	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED
9	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM
10	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL REFER TO TABULATIONS 108-8A AND 108-8C.
11	2526-8285000	CONSTRUCTION SURVEY - -
12	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE REFER TO TYPICAL 8210.
13	2528-8445110	TRAFFIC CONTROL REFER TO TABULATION 108-23.
14	2528-8445113	FLAGGERS
15	2528-9290004	CHANGEABLE MESSAGE SIGNS, PORTABLE FOR USE WITH TC-451 DURING TEMPORARY CLOSURE FOR PLACING OVERHEAD TRUSS.
16	2533-4980005	MOBILIZATION - -
17	2551-0000110	TEMP CRASH CUSHION REFER TO TABULATION 108-30.
18	2599-9999005	GALVANIZED OVERHEAD SIGN TRUSS, 55' REFER TO TABULATION 190-52 AND SHEETS V.6-V.15. METHOD OF MEASUREMENT: BY COUNT. BASIS OF PAYMENT: EACH. PAYMENT INCLUDES FURNISHING ALL MATERIALS, EQUIPMENT, TOOLS AND LABOR NECESSAY TO COMPLETE THE FABRICATION AND INSTALLATION OF THE TRUSS, INCLUDING THE RUNWAY AND LADDER.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
19	2599-9999005	OVERHEAD DMS, INSTALL ONLY REFER TO TABULATION 190-52 AND THE 'B' AND 'V' SHEETS. WORK SHALL CONSIST OF FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS TO CONSTRUCT AND DYNAMIC MESSAGE SIGN (DMS), GENERALLY INCLUDING, BUT NOT LIMITED TO: - ATTACHMENT OF THE DMS TO THE SUPPORT STRUCTURE - CONSTRUCTION OF THE GROUND CABINET FOOTING - INSTALLATION OF AN RM-38 JUNCTION BOX - INSTALLATION OF THE CONDUIT BETWEEN THE SIGN SUPPORT STRUCTURE FOOTING AND THE GROUND CABINET FOOTING - INSTALLATION OF THE GROUND CABINET - TRANSPORT DMS AND ASSOCIATED APPURTENANCES FROM STORAGE AREA THE FOLLOWING ITEMS WILL BE PROVIDED BY THE DOT OR THE DMS VENDOR: DMS, DMS-TO-SIGN SUPPORT STRUCTURE ATTACHMENT HARDWARE, AND GROUND CABINET. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE DOT FURNISHED MATERIALS PRIOR TO ACCESSING THEM. THIS ASSUMPTION OF RESPONSIBILITY SHALL BE DOCUMENTED WITH AN ITEMIZED INVOICE CLEARLY IDENTIFYING EACH ITEM AND SHALL BE SIGNED AND DATED BY THE CONTRACTOR AND THE ENGINEER. LACKING A SIGNED INVOICE, THE DEFAULT DATE OF ASSUMPTION OF RESPONSIBILITY FOR THESE MATERIALS SHALL BE THE DATE THE CONTRACT BETWEEN THE DOT AND THE CONTRACTOR IS SIGNED. UPON THE ASSUMPTION OF RESPONSIBILITY FOR ANY AND ALL MATERIALS, THE CONTRACTOR SHALL BE WHOLLY LIABLE FOR SAFE HANDLING, STORAGE, AND INSTALLATION OF THE EQUIPMENT. ANY DAMAGED EQUIPMENT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE, WITHOUT ADDITIONAL COMPENSATION. THE DMS'S AND RELATED EQUIPMENT ARE STORED IN THE IOWA DOT MAINTENANCE FACILITY IN AMES, IA. METHOD OF MEASUREMENT: BY COUNT. BASIS OF PAYMENT: EACH. THIS PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT (EXCEPT AS NOTED ABOVE) AND LABOR AND FOR THE PERFORMANCE OF ALL WORK NECESSARY, INCLUDING TRANSPORT OF ALL PROVIDED MATERIALS FROM THEIR PRESENT LOCATION, TO PROVIDE THE DMS INSTALLATION.

ESTIMATE REFERENCE INFORMATION

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
20	2599-9999005	ROADSIDE DMS, INSTALL ONLY REFER TO TABULATION 192-1 AND SHEETS B.01-B.03. WORK SHALL CONSIST OF FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS TO CONSTRUCT AND DYNAMIC MESSAGE SIGN (DMS), GENERALLY INCLUDING, BUT NOT LIMITED TO: - ATTACHMENT OF THE DMS TO THE SUPPORT STRUCTURE - CONSTRUCTION OF THE GROUND CABINET FOOTING - INSTALLATION OF AN RM-38 JUNCTION BOX - INSTALLATION OF THE CONDUIT BETWEEN THE SIGN SUPPORT STRUCTURE FOOTING AND THE GROUND CABINET FOOTING - INSTALLATION OF THE GROUND CABINET - TRANSPORT DMS AND ASSOCIATED APPURTENANCES FROM STORAGE AREA - REMOVE EXISTING 3' "Z" BRACKETS ON BACK OF SIGNS AND REPLACE WITH DOT PROVIDED 5' "Z" BRACKETS THE ROADSIDE DMS VENDOR IS SKYLINE PRODUCTS, INC. OF COLORADO SPRINGS, COLORADO. THE FOLLOWING ITEMS WILL BE PROVIDED BY THE DOT OR THE DMS VENDOR: DMS, DMS-TO-SIGN SUPPORT STRUCTURE ATTACHMENT HARDWARE, AND GROUND CABINET. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE DOT FURNISHED MATERIALS PRIOR TO ACCESSING THEM. THIS ASSUMPTIONOF RESPONSIBILITY SHALL BE DOCUMENTED WITH AN ITEMIZED INVOICE CLEARLY IDENTIFYING EACH ITEM AND SHALL BE SIGNED AND DATED BY THE CONTRACTOR AND THE ENGINEER. LACKING A SIGNED INVOICE, THE DEFAULT DATE OF ASSUMPTION OF RESPONSIBILITY FOR THESE MATERIALS SHALL BE THE DATE THE CONTRACT BETWEEN THE DOT AND THE CONTRACTOR IS SIGNED. UPON THE ASSUMPTION OF RESPONSIBILITY FOR ANY AND ALL MATERIALS, THE CONTRACTOR SHALL BE WHOLLY LIABLE FOR SAFE HANDLING, STORAGE, AND INSTALLATION OF THE EQUIPMENT. ANY DAMAGED EQUIPMENT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE, WITHOUT ADDITIONAL COMPENSATION. THE DMS'S AND RELATED EQUIPMENT ARE STORED IN THE IOWA DOT WALKON MAINTENANCE FACILITY. METHOD OF MEASUREMENT: THE ENGINEER WILL COUNT THE NUMBER OF ROADSIDE DMS SIGNS INSTALLED. BASIS OF PAYMENT: THE CONTRACTOR SHALL BE PAID THE CONTRACT UNIT PRICE FOR EACH ROADSIDE DMS SIGN INSTALLED. THIS PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT (EXCEPT AS NOTED ABOVE) AND LABOR AND FOR THE PERFORMANCE OF ALL WORK NECESSARY, INCLUDING TRANSPORT OF ALL PROVIDED MATERIALS FROM THEIR PRESENT LOCATION, TO PROVIDE THE DMS INSTALLATION.
21	2599-9999005	STEEL ROADSIDE DMS SUPPORT FOR THE FABRICATION AND INSTALLATION OF STEEL SIGN SUPPORTS. REFER TO THE V SHEETS FOR DIMENSIONS AND DETAILS. THESE ITEMS SHALL BE CONSTRUCTED AS PER SECTION 2423. METHOD OF MEASUREMENT: BY COUNT. BASIS OF PAYMENT: EACH. PAYMENT INCLUDES FURNISHING ALL MATERIALS, EQUIPMENT, TOOLS AND LABOR NECESSAY TO COMPLETE THE FABRICATION AND INSTALLATION OF THE STEEL ROADSIDE DMS SUPPORT, INCLUDING THE RUNWAY.

TABULATION OF SPECIAL EVENTS

102-15
10-29-02

Event	Location	Date(s)
DUBUQUE COUNTY FAIR	DUBUQUE	07/27/2010 - 08/01/2010

CRASH CUSHIONS

108-30
04-20-10

(1) Lane(s) to which the installation is adjacent.
(2) Complete this section when using the Temporary Crash Cushion bid item. Refer to Standard Road Plan BA-500.

* Bid Item

No.	(1) Direction of Traffic	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					Sand Barrel Details (2)					Earthwork*		Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	(V) Length	(W) Length	(X) Length	(Y) Length	(Z) Length	Excavation Class 10	Embankment in Place	
				Feet						Feet	Feet	Feet	Feet	Feet	Cu.Yds.	Cu.Yds.	
1	EB	2342+75	M	2	X					0	24.25	5.25	3.25	12.0		5	

TRAFFIC CONTROL PLAN

108-23
04-04-89

TRAFFIC WILL BE MAINTAINED AT ALL TIMES.

LANE CLOSURES SHALL ONLY BE ALLOWED BETWEEN 8:00PM AND 6:00 AM, SUNDAY EVENING THROUGH FRIDAY MORNING.

ESTIMATE REFERENCE INFORMATION
AND TABULATIONS

TABULATION OF MATERIALS FOR OVERHEAD SIGN SUPPORT STRUCTURES

190-52
09-25-02

DMS NUMBER	STRUCTURE TYPE/LENGTH	LOCATION			DIR OF TRAVEL	INSIDE FOOTING OFFSET (Ft)	OUTSIDE FOOTING OFFSET (Ft)	DIMENSION 'L'		FOUNDATION QUANTITIES			
										EXCAVATION (CLASS 20) (Cu Yd)	REINFORCING		STRUCTURAL CONCRETE (Cu Yd)
		ROUTE	STATION	MILEPOST				INSIDE (Ft)	OUTSIDE (Ft)		STEEL (Lb)	EPOXY- COATED STEEL (Lb)	
109	55	US 20	2343+90	316.38	WB	0	55	2	4	88		4032	40.44

TABULATION OF MATERIALS FOR STEEL ROADSIDE DMS SIGN SUPPORT

Refer to Site Installation Details on Sheet B.02, Sheet N.01 and "V" Sheets.

192-1
03-17-09

DMS NUMBER	LOCATION				HORIZONTAL OFFSET TO CENTER OF POST (Ft)	SKEW ANGLE (Degrees)	OFFSETS TO NEAR CORNERS OF FOOTING		LENGTH OF POST (Ft)	FOUNDATION QUANTITIES		
	ROUTE	STATION	MILEPOST	DIR OF TRAVEL			Y_1 (Ft)	Y_2 (Ft)		EXCAVATION (CLASS 20) (Cu Yd)	REINFORCING - EPOXY- COATED STEEL (Lb)	STRUCTURAL CONCRETE (Cu Yd)
901	IA 32	613+30 (m)	0.48	SB	42.0	8	40.52	40.89	20.0	30	1120	11.5
902	US 52	107+00	44.86	SB	32.0	3	36.60	36.73	22.0	30	1120	11.5
									TOTALS	60	2240	23.0

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE END POST

Refer to BA-200, BA-201, BA-202, BA-203, BA-250, and SPECIAL GUARDRAIL LAYOUT (Sheet B.04)

108-8C
SPECIAL

Location Point		Layout Lengths				Delineators and Object Markers					Bid Items (1)				(1) See Standards for list of materials.
		(VT1)	(D_O)			Type	Delineator	Object Marker			End Anchor	Barrier Transition Section	Steel Beam Guardrail	End Anchor	
							Type 1	Type 2	Type 3						
							White	OM2-2V	OM-3L	OM-3R	BA-202	BA-201	BA-200	BA-203	
No.	Station and Offset	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.		No.	No.	No.	No.	Type	No.	Lin. ft.	No.	Remarks
	2344+48, 51' LT.	75	3.0								B	1	37.5	1	(1)
	2344+48, 21' LT.	75	3.0								B	1	37.5	1	

(1) REQUIRES NEW HOLES IN END POST FOR ATTACHMENT

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE END POST

Refer to BA-200, BA-201, BA-202, BA-205, BA-250, SI-172 and SI-173

108-8A
04-20-10

Location Point		Layout Lengths				Delineators and Object Markers					Bid Items (1)				(1) See Standards for list of materials.
		(VT1)	(VF)	(VT2)	(ET) Terminal (50.0')	Type	Delineator	Object Marker			End Anchor	Barrier Transition Section	Steel Beam Guardrail	End Terminal	
							Type 1	Type 2	Type 3						
							White	OM2-2V	OM-3L	OM-3R	BA-202	BA-201	BA-200	BA-205	
No.	Station and Offset	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.		No.	No.	No.	No.	Type	No.	Lin. ft.	No.	Remarks
	2344+48, 19' RT.	28.1	50.0		50.0	3			1		B	1	50.0	1	

REMOVE or REMOVE & REINSTALL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.

110-7A
04-19-05

Location			Side	Steel Beam Guardrail		Posts		End Anchorage			Remarks
No.	(1) Direction of Traffic	Station		Remove (Lin. Ft.)	Remove & Reinstall (Lin. Ft.)	Remove (No.)	Remove & Reinstall (No.)	Remove (No.)	Remove & Reinstall (No.)	Type	
	EB	2344+28	M	237.5		37		2		RE-69	

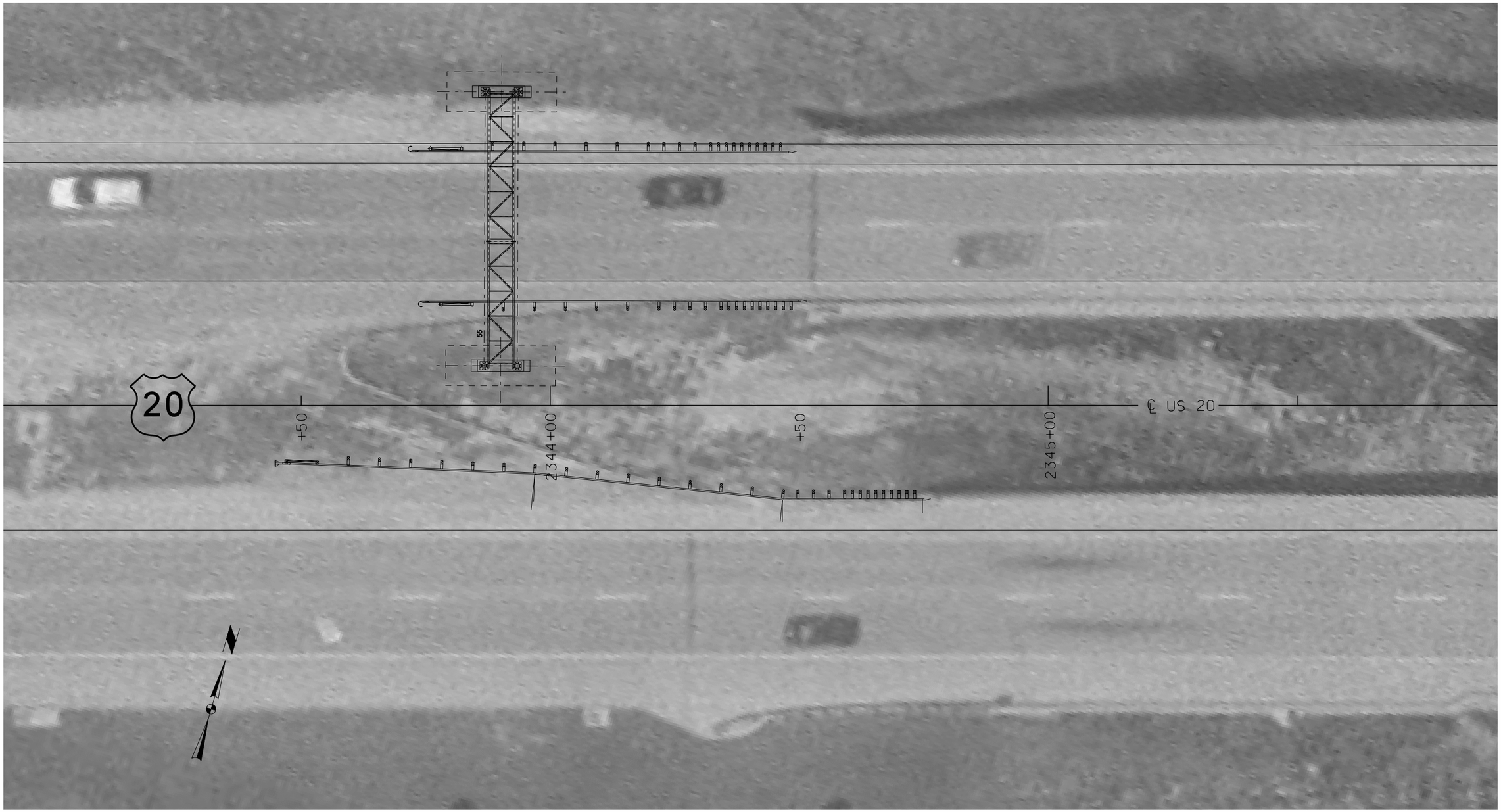
PROJECT TABULATIONS

SITE DETAILS FOR DMS #901
IA 32- SOUTHBOUND
STATION 613+30

0 5
METERS

IOWA DEPARTMENT OF TRANSPORTATION	OFFICE OF TRAFFIC & SAFETY	DESIGN TEAM NARIGON/JENSEN	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER N.01

4/5/2010 pjense2 W:\Projects\0307601010\TrafEng\Signing\25-31-000S-406\31000S406_n01.sht



SITE DETAILS FOR DMS #109
US 20- WESTBOUND
STATION 2343+90

0 10
FEET

IOWA DEPARTMENT OF TRANSPORTATION	OFFICE OF TRAFFIC & SAFETY	DESIGN TEAM NARIGON/JENSEN	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER N.02

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SITE DETAILS FOR DMS #902
US 52- SOUTHBOUND
STATION 107+00

0 10
FEET

IOWA DEPARTMENT OF TRANSPORTATION	OFFICE OF TRAFFIC & SAFETY	DESIGN TEAM NARIGON/JENSEN	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER N.03	

4/5/2010 pjense2 W:\Projects\0307601010\TrafEng\Signing\25-31-000S-406\31000S406_n01.sht

ANCHOR BOLT NOTES:

PROCEDURE FOR TIGHTENING ANCHOR BOLT NUTS ON STEEL ROADSIDE D.M.S. SUPPORT.

1) THIS WORK SHALL BE PERFORMED ONLY ON DAYS WITH WINDS LESS THAN 15 MPH. ALL TIGHTENING OF THE NUTS IS TO BE DONE IN THE PRESENCE OF THE INSPECTOR. ONCE THE TIGHTENING PROCEDURE IS STARTED IT MUST BE COMPLETED ON ALL OF THE BASE PLATE NUTS WITHOUT PAUSE OR DELAY.

2) PROPERLY SIZED WRENCHES DESIGNED FOR TIGHTENING NUTS AND/OR BOLTS SHALL BE USED TO AVOID ROUNDING OR OTHER DAMAGE TO THE NUTS. ADJUSTABLE END OR PIPE WRENCHES MAY NOT BE USED.

3) BASE PLATE, ANCHOR RODS AND NUTS ARE TO BE FREE OF ANY DIRT OR DEBRIS.

4) APPLY STICK WAX OR BEES WAX TO THE THREADS AND BEARING SURFACES OF THE ANCHOR BOLT, NUTS, AND WASHERS.

5) TIGHTEN TOP NUTS SO THEY FULLY CONTACT THE BASE PLATE. TIGHTEN LEVELING NUTS TO SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE FULL EFFORT OF ONE PERSON ON A WRENCH WITH A LENGTH EQUAL TO 14 TIMES THE BOLT DIAMETER BUT NOT LESS THAN 18 INCHES. APPLY THE FULL EFFORT AS CLOSE TO THE END OF THE WRENCH AS POSSIBLE. PULL FIRMLY BY LEANING BACK AND USING ENTIRE BODY WEIGHT ON THE END OF THE WRENCH UNTIL THE NUT STOPS ROTATING. USE A MINIMUM OF TWO SEPARATE PASSES OF TIGHTENING. SEQUENCE THE TIGHTENING IN EACH PASS SO THAT THE NUT ON THE OPPOSITE SIDE, TO THE EXTENT POSSIBLE, WILL BE SUBSEQUENTLY TIGHTENED UNTIL ALL OF THE NUTS IN THAT PASS HAVE BEEN TIGHTENED.

6) TIGHTEN TOP NUTS TO SNUG TIGHT AS DESCRIBED FOR THE LEVELING NUTS.

7) MATCH-MARK THE TOP NUTS AND BASE PLATE USING PAINT, CRAYON, OR OTHER APPROVED MEANS TO PROVIDE A REFERENCE FOR DETERMINING THE RELATIVE ROTATION OF THE NUT AND BASE PLATE DURING TIGHTENING. USING A STRIKING OR HYDRAULIC WRENCH, FURTHER TIGHTEN THE TOP NUTS IN TWO PASSES AS LISTED IN THE FOLLOWING TABLE. USE A SEQUENCE OF TIGHTENING IN EACH PASS SO THAT THE NUT ON THE OPPOSITE SIDE, TO THE EXTENT POSSIBLE, WILL BE SUBSEQUENTLY TIGHTENED UNTIL ALL NUTS IN THAT PASS HAVE BEEN TURNED. DO NOT ROTATE THE LEVELING NUT DURING THE TOP NUT TIGHTENING.

ANCHOR BOLT SIZE	FIRST PASS	SECOND PASS	TOTAL ROTATION
LESS THAN OR EQUAL TO $1\frac{1}{2}\Phi$"	1/6 TURN	1/6 TURN	1/3 TURN

8) LUBRICATE, PLACE AND TIGHTEN THE JAM NUTS TO SNUG TIGHT.

DESIGN STRESSES:

DESIGN STRESSES FOR MATERIALS ARE IN ACCORDANCE WITH A.A.S.H.T.O STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2001 WITH CURRENT INTERIMS.

SPECIFICATIONS:

DESIGN: A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2001 WITH CURRENT INTERIMS.

CONSTRUCTION: IOWA D.O.T. STANDARD SPECIFICATIONS, SERIES 2001 PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

STAINLESS STEEL BOLTING NOTE:

UNLESS OTHERWISE NOTED ON THE PLAN, ALL STAINLESS STEEL BOLTS AND U-BOLTS SHALL BE FURNISHED WITH STAINLESS STEEL REGULAR HEXAGONAL NUTS, JAM NUTS AND WASHERS UNDER BOTH HEADS AND NUTS.

STEEL NOTES:

ALL STEEL SHAPES, BARS, AND PLATES SHALL COMPLY WITH ASTM A36 EXCEPT MINOR PARTS APPROVED BY THE ENGINEER MAY COMPLY WITH ASTM A575 GRADE M1020. THE GALVANIZED METAL BAR GRATING INCLUDING BEARING BAR, CROSS BARS AND BANDING BARS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A1011 TYPE 2. ALL STEEL PIPE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A53 GRADE B, TYPE E OR S OR API 5L GRADE B. ALL ROUND HSS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A 500 GRADE B.

ALL STEEL SECTIONS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. PROVIDE VENT HOLES FOR GALVANIZING.

ALL ANCHOR BOLT MATERIAL SHALL COMPLY WITH THE REQUIREMENTS OF IOWA DOT MATERIALS IM 453.08.

STEEL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AWS SPECIFICATIONS D1.1, STRUCTURAL WELDING CODE-STEEL.

ULTRASONIC TESTING SHALL BE PREFORMED ON THE POST TO BASE PLATE WELDS.

THE $\frac{3}{4}$"Φ A325 GALVANIZED BOLTS SHALL BE TENSIONED BY TURN OF THE NUT METHOD.

GENERAL NOTES:

ALL D.M.S. SUPPORTS ARE DESIGNED FOR 40.2 lb/ft^2 WIND PRESSURE ON MEMBERS AND SIGN PANELS.

ALL PIPES, SHAPES, AND PLATES SHALL BE STRUCTURAL STEEL COMPLYING WITH THE ASTM SPECIFICATIONS NOTED.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW.

CLEAR DISTANCE FROM FACE OF CONCRETE TO THE NEAREST REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE SHOWN.

THE ANCHOR BOLT ASSEMBLY SHALL BE CENTERED AT THE CENTER OF SHAFT AND SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED.

THE FOOTING SHALL BE BACKFILLED PRIOR TO ERECTING SIGN SUPPORT.

DESIGN ALLOWABLE SOIL BEARING IS 1.0 TON PER SQ. FT.

ALL REINFORCING TO BE GRADE 60.

ALL CONCRETE TO BE CLASS "C" STRUCTURAL CONCRETE.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

FOUNDATIONS AND ANCHOR BOLTS:

1) THE ELEVATION AT THE OF THE TOP OF THE FOUNDATION SHALL BE WITHIN 1 INCH OF PLAN ELEVATION.

2) ANCHOR BOLT GROUPS SHALL BE LOCATED ACCURATELY BY TEMPLATE OR OTHER POSITIVE MEANS, WITH CENTERS OF ADJACENT ANCHOR BOLT GROUPS WITHIN $\frac{3}{16}$ INCH OF THE CORRECT DISTANCE APART.

3) ANCHOR BOLTS SHALL BE PLUMB WITHIN $\frac{1}{4}$ INCH PER FOOT FROM VERTICAL.

4) ANCHOR BOLTS SHALL PROJECT ABOVE TOP OF FOUNDATION WITHIN $\frac{1}{4}$ INCH OF THE PLAN DIMENSION.

5) WELDING OR BENDING OF ANCHOR BOLTS SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL OBTAIN A TEMPLATE FROM THE MANUFACTURER / FABRICATOR FOR PROPER PLACEMENT OF THE ANCHOR BOLTS.

COMPLETED STEEL STRUCTURE:

1) THE SUPPORT COLUMN SHALL BE PLUMB WITHIN $\frac{1}{16}$ INCH PER FOOT OF VERTICAL IN TWO PERPENDICULAR DIRECTIONS.

2) HORIZONTAL LINE BETWEEN CHORDS SHALL BE LEVEL WITHIN $\frac{1}{16}$ INCH PER FOOT OF HORIZONTAL.

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER — James R. Hauber 18418 — IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

James Hauber 2-23-2010
Signature Date

James R. Hauber
Printed or Typed Name

My license renewal date is December 31, 2010

Pages or sheets covered by this seal: V.1 THRU V.15

DESIGN #	COUNTY	LOCATION	STATION
110	DUBUQUE	IA 32	613+30 (M)
310	DUBUQUE	US 52	107+00

DESIGN FOR

STEEL ROADSIDE D.M.S. SUPPORT

GENERAL NOTES

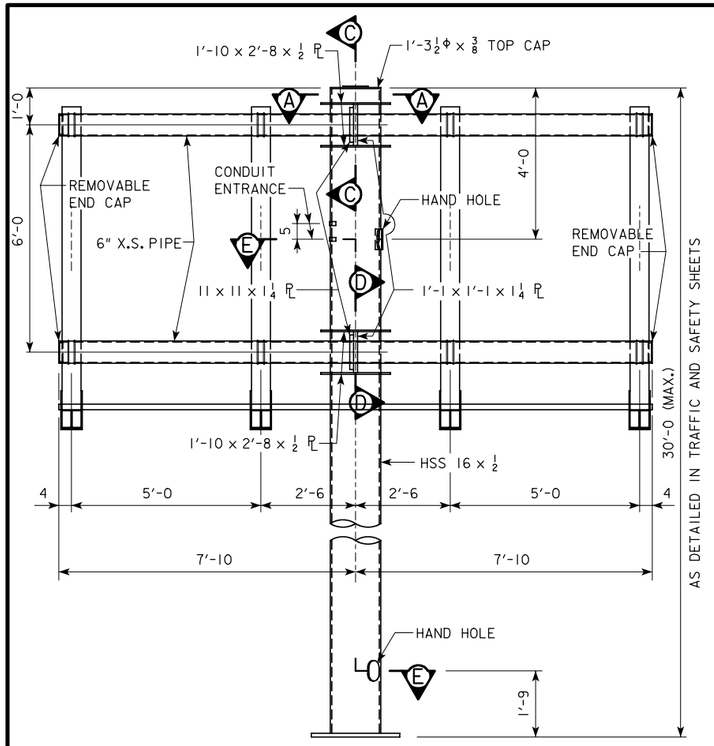
FEBRUARY, 2010

DUBUQUE COUNTY

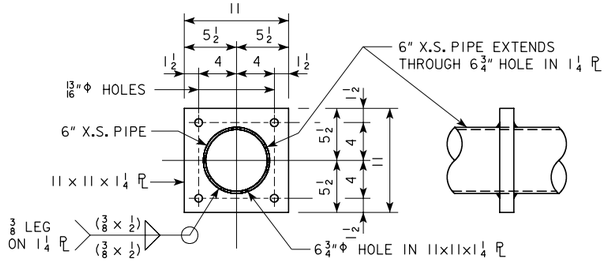
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 5 FILE NO. 30504 DESIGN NO. SEE CHART

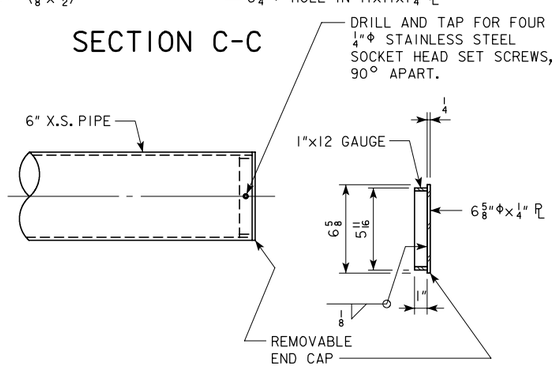
DESIGN TEAM JRH / JDC / HLA	ROADSIDE DMS SUPPORT	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER V.1



ELEVATION



SECTION C-C



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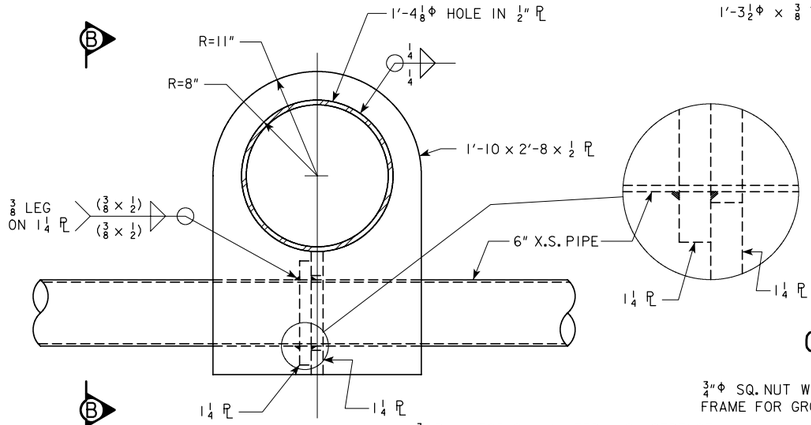
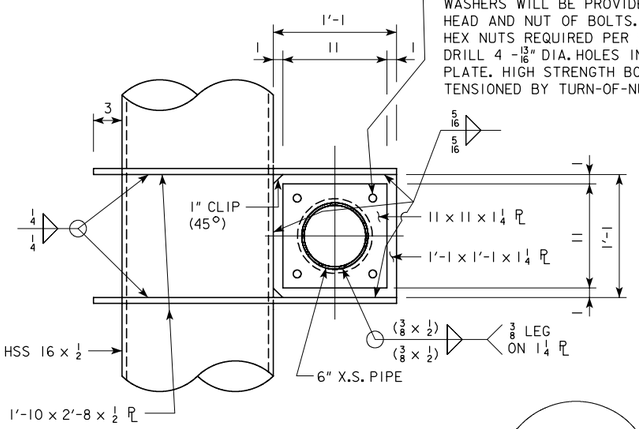
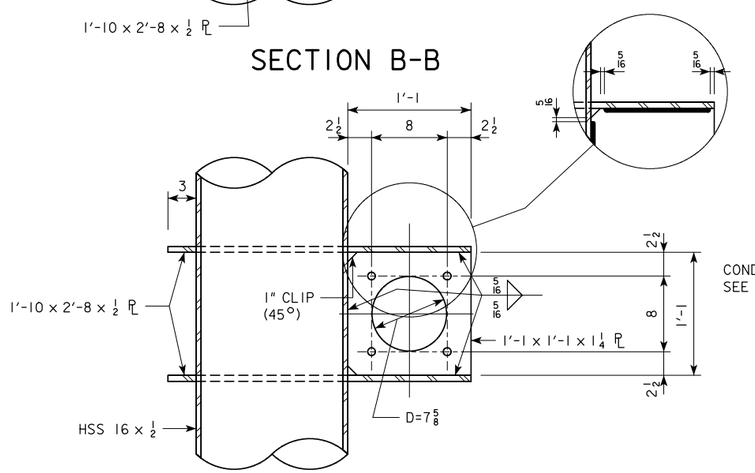


SECTION A-A



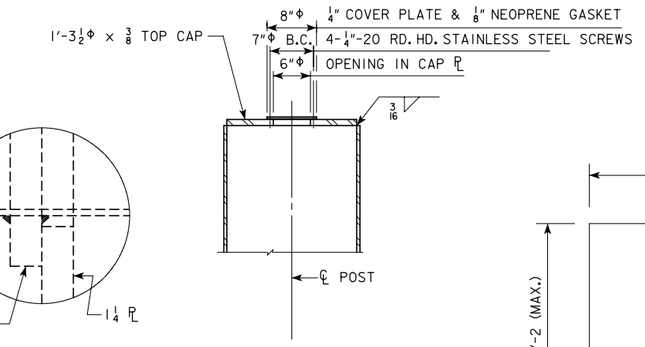
SECTION B-B



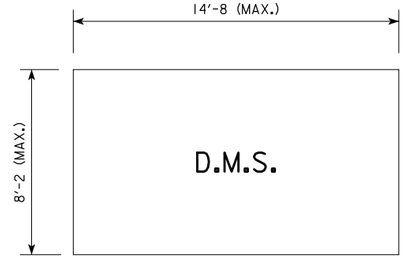
SECTION D-D

(6" X.S. PIPE NOT SHOWN)

¾" DIA. A325 GALVANIZED HIGH STRENGTH BOLTS, MEETING THE REQUIREMENTS OF ARTICLE 2408.03,S. 8 BOLTS REQUIRED PER SUPPORT STRUCTURE, 16 HARDENED WASHERS REQUIRED PER SUPPORT STRUCTURE. HARDENED WASHERS WILL BE PROVIDED UNDER BOTH HEAD AND NUT OF BOLTS. 8 - ¾" DIA. HEAVY HEX NUTS REQUIRED PER SUPPORT STRUCTURE. DRILL 4 - 13/16" DIA. HOLES IN EACH 1¼" VERTICAL PLATE. HIGH STRENGTH BOLTS SHALL BE TENSIONED BY TURN-OF-NUT METHOD.

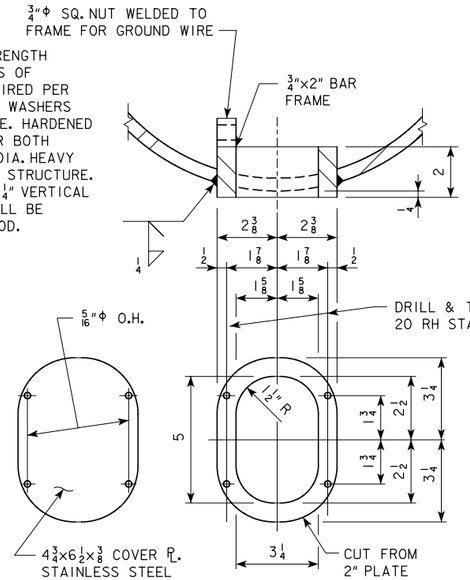


COVER PLATE DETAIL



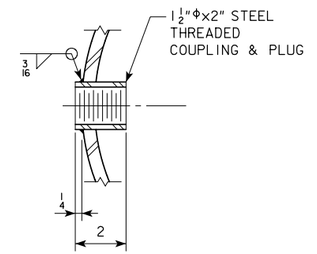
D.M.S. LIMITS FOR SIGN SUPPORT DESIGN.

1700 LBS. MAX.
1'-4 MAX. DEPTH

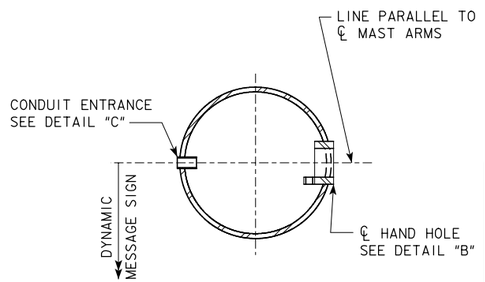


DETAIL "B"

DESIGN #	COUNTY	LOCATION	STATION
110	DUBUQUE	IA 32	613+30 (M)
310	DUBUQUE	US 52	107+00



DETAIL "C"



SECTION E-E

DESIGN FOR

STEEL ROADSIDE D.M.S. SUPPORT

SIGN SUPPORT DETAILS

FEBRUARY, 2010

DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 5 FILE NO. 30504 DESIGN NO. SEE CHART

DESIGN TEAM JRH / JDC / HLA	CANTILEVER SIGN TRUSS		DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER V.2

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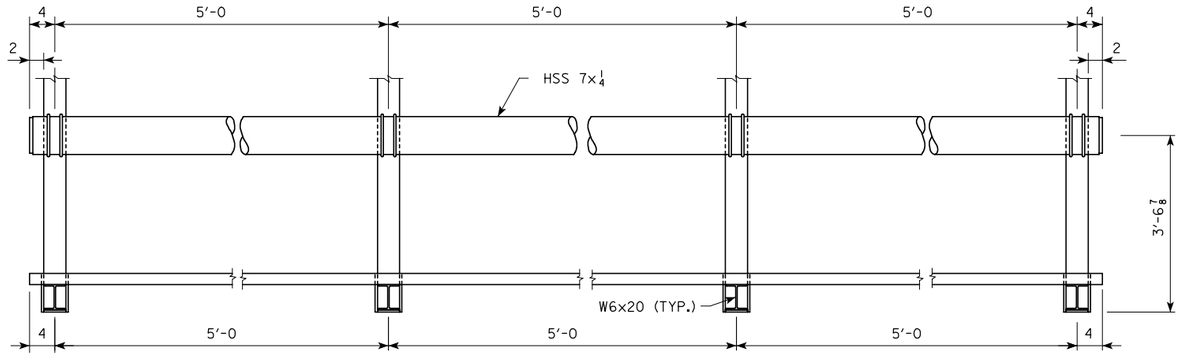
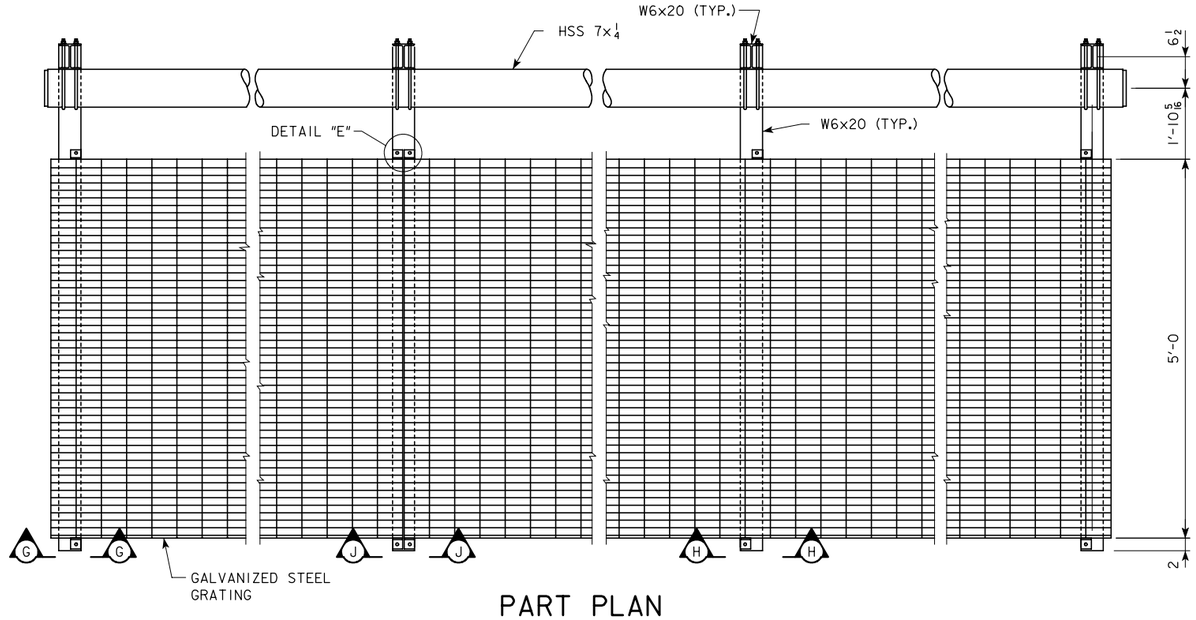
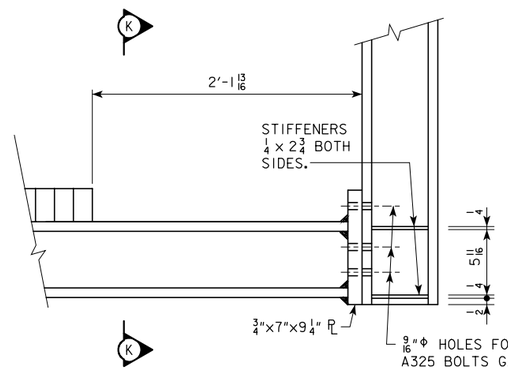


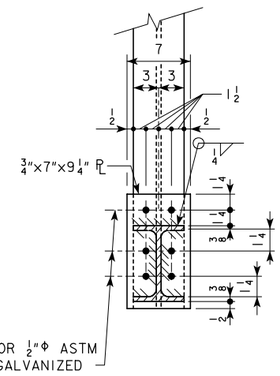
PART ELEVATION



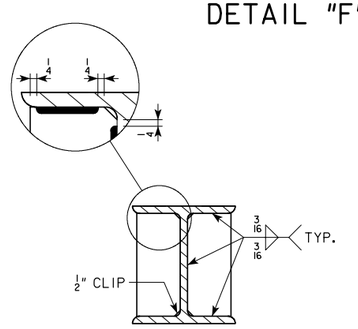
PART PLAN



DETAIL "F"



SECTION K-K

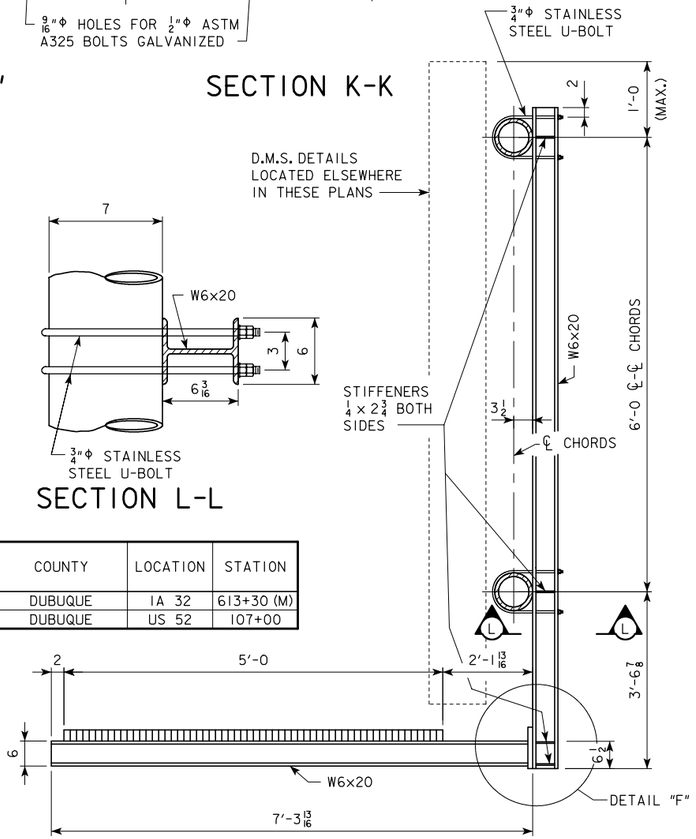


TYPICAL STIFFENER DETAIL

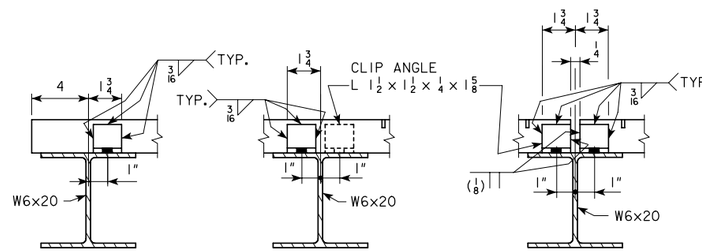
SECTION L-L

STAINLESS STEEL U-BOLT DETAIL

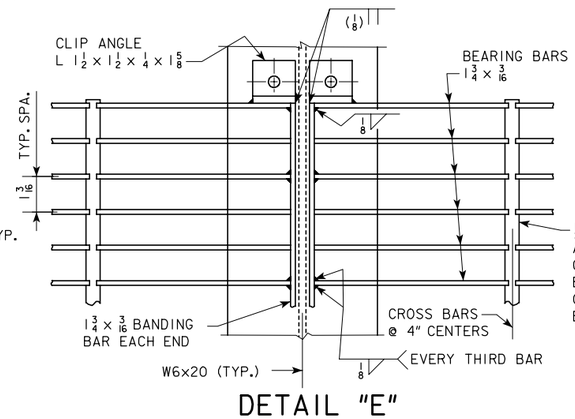
DESIGN #	COUNTY	LOCATION	STATION
110	DUBUQUE	IA 32	613+30 (M)
310	DUBUQUE	US 52	107+00



TYPICAL WORK PLATFORM SECTION



SECTION G-G SECTION H-H SECTION J-J



DETAIL "E"

½ × 3/16 CROSS BARS OR APPROVED EQUAL. CROSS BARS ARE TO BE PRESSURE LOCKED OR WELDED TO BEARING BARS.

NOTE:
7/16"Φ HOLE IN CLIP ANGLE AND 7/16"Φ HOLE IN W6×20 FOR ⅜"Φ GALVANIZED A325 BOLT. ADJUST CLIP SO GRATING BEARS ON BEAM.

DESIGN FOR
STEEL ROADSIDE D.M.S. SUPPORT

WORK PLATFORM DETAILS

FEBRUARY, 2010

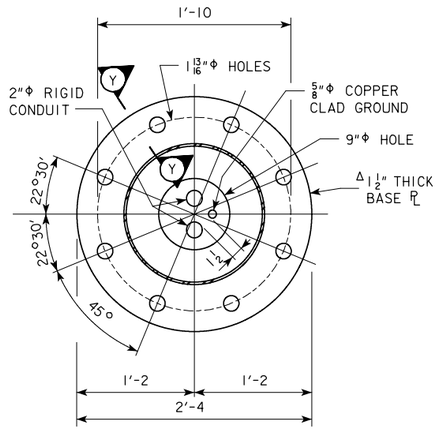
DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

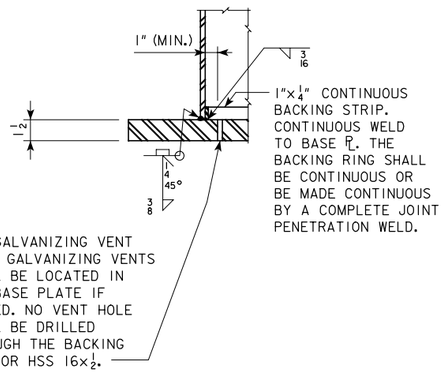
DESIGN SHEET NO. 3 OF 5 FILE NO. 30504 DESIGN NO. SEE CHART

DESIGN TEAM JRH / JDC / HLA | DUBUQUE COUNTY | PROJECT NUMBER ITS-000-S(406)--25-31 | SHEET NUMBER V.3

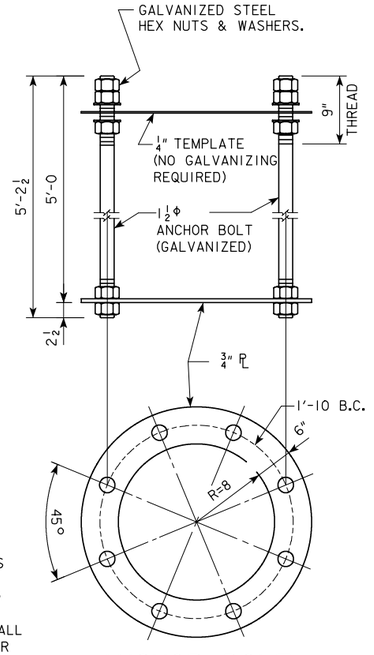
23-FEB-2010 09:21 jcolle W:\Projects\0307601010\BRFinal\03076406.brg 310110s003 \\ntpprtsvr2\BrgPDF



SECTION X-X

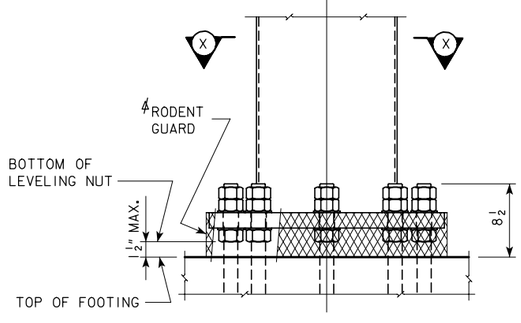


SECTION Y-Y



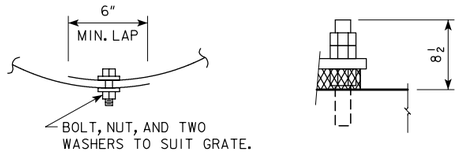
ANCHOR BOLT ASSEMBLY

(ALL ANCHOR BOLT MATERIAL SHALL COMPLY WITH THE REQUIREMENTS OF IOWA DOT MATERIALS I.M. 453.08.)



POST BASE DETAIL

RODENT GUARD ALTERNATE



RODENT GUARD CLOSURE DETAIL

4 A RODENT GUARD SHALL BE PLACED BETWEEN THE CONCRETE FOOTING AND THE BASE PLATE, SEE MATERIALS I.M. 443.01.

AS AN ALTERNATE STAINLESS STEEL STANDARD GRADE WIRE CLOTH, 1/4" MAXIMUM OPENING WITH A MINIMUM WIRE DIAMETER OF AWG NO. 16 WITH A MINIMUM 2" LAP. SECURE TO BASE PLATE AFTER ERECTION WITH 3/4" STAINLESS STEEL BANDING. THE RODENT GUARD SHALL NOT EXTEND ABOVE THE TOP OF THE BASE PLATE.

DESIGN #	COUNTY	LOCATION	STATION
110	DUBUQUE	IA 32	613+30 (M)
310	DUBUQUE	US 52	107+00

DESIGN FOR

STEEL ROADSIDE D.M.S. SUPPORT

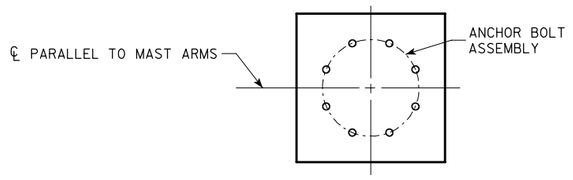
SIGN SUPPORT DETAILS

FEBRUARY, 2010

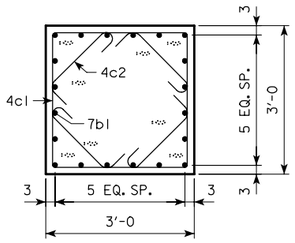
DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

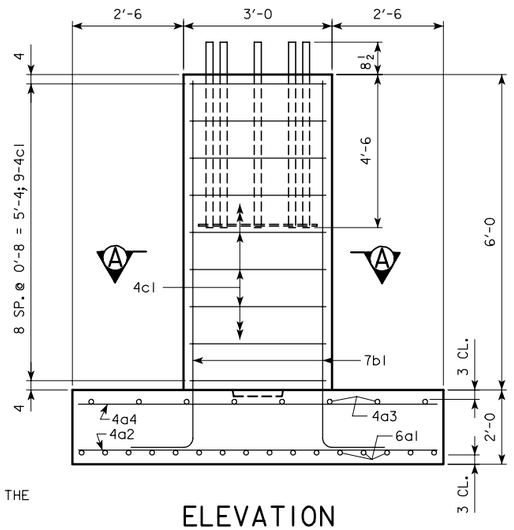
DESIGN SHEET NO. 4 OF 5 FILE NO. 30504 DESIGN NO. SEE CHART



TOP VIEW

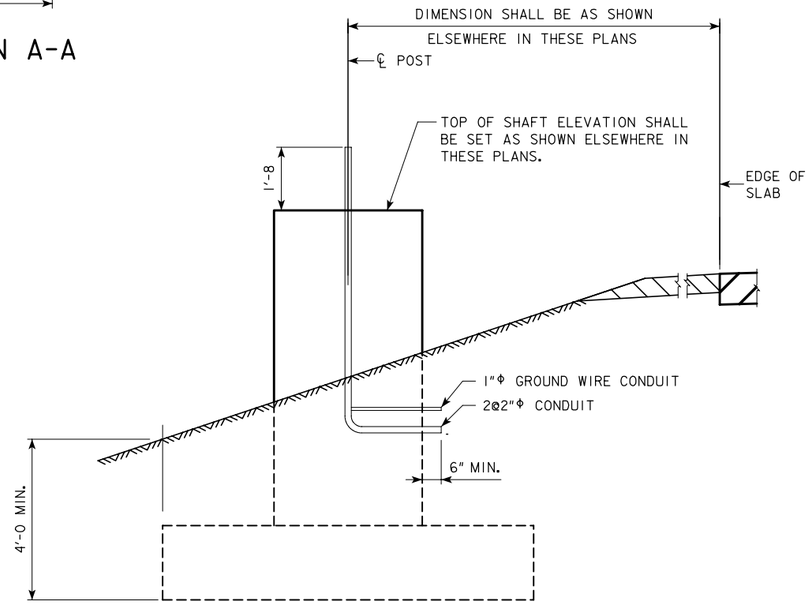


SECTION A-A

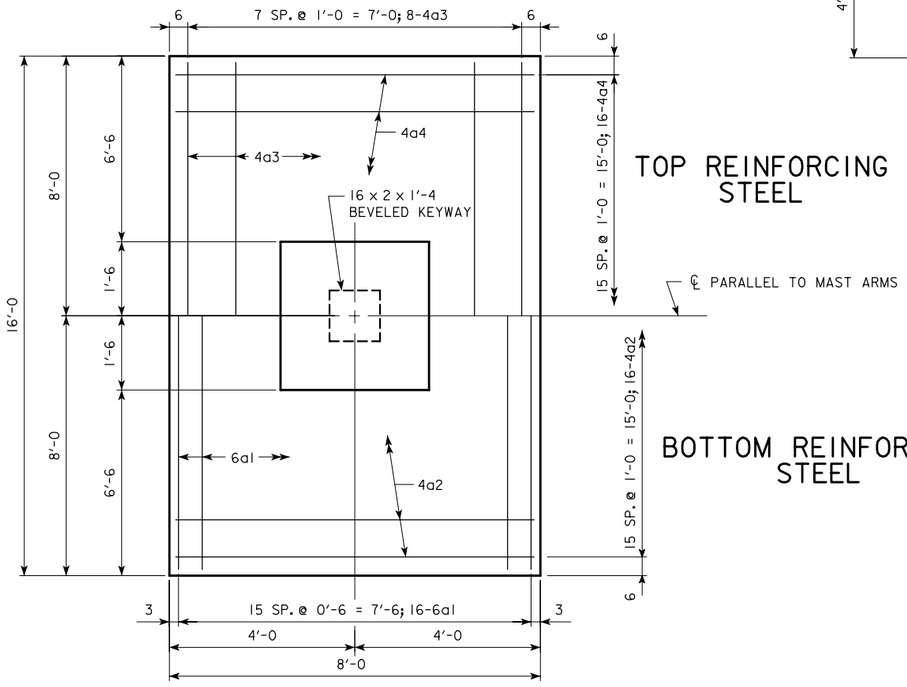


ELEVATION

THE JOINT BETWEEN THE SHAFT AND FOOTING SHALL BE ROUGH.



ELEVATION - TOP OF SHAFT AND BACKFILL



TOP REINFORCING STEEL

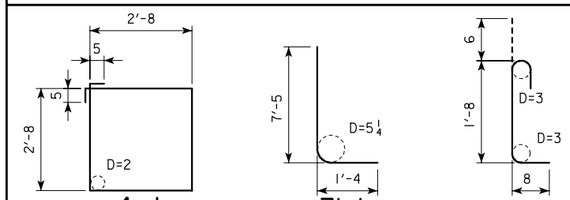
BOTTOM REINFORCING STEEL

FOOTING PLAN

EPOXY-COATED REINFORCING BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	FOOTING BOTT., LONGIT.	——	16	15'-8	377
4a2	FOOTING BOTT., TRANSV.	——	16	7'-8	82
4a3	FOOTING TOP, LONGIT.	——	8	15'-8	84
4a4	FOOTING TOP, TRANSV.	——	16	7'-8	82
7b1	FOOTING TO SHAFT DOWEL	L	20	8'-9	358
4c1	SHAFT HOOPS	□	9	11'-6	69
4c2	SHAFT TIES	⊔	36	2'-10	68
	REINFORCING STEEL - EPOXY COATED TOTAL (LBS.)				1120

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

ESTIMATED CONCRETE QUANTITIES

SHAFT	2.0
FOOTING	9.5
TOTAL - CU. YDS.	11.5

FOOTING ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE	CU. YDS.	11.5
REINFORCING STEEL-EPOXY COATED	LBS.	1120

DESIGN #	COUNTY	LOCATION	STATION
110	DUBUQUE	IA 32	613+30 (M)
310	DUBUQUE	US 52	107+00

DESIGN FOR

STEEL ROADSIDE D.M.S. SUPPORT

FOOTING DETAILS

FEBRUARY, 2010

DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 5 FILE NO. 30504 DESIGN NO. SEE CHART

DESIGN TEAM JRH / JDC / HLA | DUBUQUE COUNTY | PROJECT NUMBER ITS-000-S(406)--25-31 | SHEET NUMBER V.5

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ANCHOR BOLT NOTES:

PROCEDURE FOR TIGHTENING ANCHOR BOLT NUTS ON OVERHEAD SIGN TRUSS.

1) THIS WORK SHALL BE PERFORMED ONLY ON DAYS WITH WINDS LESS THAN 15 MPH. ALL TIGHTENING OF THE NUTS IS TO BE DONE IN THE PRESENCE OF THE INSPECTOR. ONCE THE TIGHTENING PROCEDURE IS STARTED IT MUST BE COMPLETED ON ALL OF THE BASE PLATE NUTS WITHOUT PAUSE OR DELAY.

2) PROPERLY SIZED WRENCHES DESIGNED FOR TIGHTENING NUTS AND/OR BOLTS SHALL BE USED TO AVOID ROUNDING OR OTHER DAMAGE TO THE NUTS. ADJUSTABLE END OR PIPE WRENCHES MAY NOT BE USED.

3) BASE PLATE, ANCHOR RODS AND NUTS ARE TO BE FREE OF ANY DIRT OR DEBRIS.

4) APPLY STICK WAX OR BEES WAX TO THE THREADS AND BEARING SURFACES OF THE ANCHOR BOLT, NUTS, AND WASHERS.

5) TIGHTEN TOP NUTS SO THEY FULLY CONTACT THE BASE PLATE. TIGHTEN LEVELING NUTS TO SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE FULL EFFORT OF ONE PERSON ON A WRENCH WITH A LENGTH EQUAL TO 14 TIMES THE BOLT DIAMETER BUT NOT LESS THAN 18 INCHES. APPLY THE FULL EFFORT AS CLOSE TO THE END OF THE WRENCH AS POSSIBLE. PULL FIRMLY BY LEANING BACK AND USING ENTIRE BODY WEIGHT ON THE END OF THE WRENCH UNTIL THE NUT STOPS ROTATING. USE A MINIMUM OF TWO SEPARATE PASSES OF TIGHTENING. SEQUENCE THE TIGHTENING IN EACH PASS SO THAT THE NUT ON THE OPPOSITE SIDE, TO THE EXTENT POSSIBLE, WILL BE SUBSEQUENTLY TIGHTENED UNTIL ALL OF THE NUTS IN THAT PASS HAVE BEEN TIGHTENED.

6) TIGHTEN TOP NUTS TO SNUG TIGHT AS DESCRIBED FOR THE LEVELING NUTS.

7) MATCH-MARK THE TOP NUTS AND BASE PLATE USING PAINT, CRAYON, OR OTHER APPROVED MEANS TO PROVIDE A REFERENCE FOR DETERMINING THE RELATIVE ROTATION OF THE NUT AND BASE PLATE DURING TIGHTENING. USING A STRIKING OR HYDRAULIC WRENCH, FURTHER TIGHTEN THE TOP NUTS IN TWO PASSES AS LISTED IN THE FOLLOWING TABLE. USE A SEQUENCE OF TIGHTENING IN EACH PASS SO THAT THE NUT ON THE OPPOSITE SIDE, TO THE EXTENT POSSIBLE, WILL BE SUBSEQUENTLY TIGHTENED UNTIL ALL NUTS IN THAT PASS HAVE BEEN TURNED. DO NOT ROTATE THE LEVELING NUT DURING THE TOP NUT TIGHTENING.

ANCHOR BOLT SIZE	FIRST PASS	SECOND PASS	TOTAL ROTATION
LESS THAN OR EQUAL TO $1\frac{1}{2}\Phi$"	1/6 TURN	1/6 TURN	1/3 TURN
GREATER THAN $1\frac{1}{2}\Phi$"	1/12 TURN	1/12 TURN	1/6 TURN

8) LUBRICATE, PLACE AND TIGHTEN THE JAM NUTS TO SNUG TIGHT.

DESIGN STRESSES:

DESIGN STRESSES FOR MATERIALS ARE IN ACCORDANCE WITH A.A.S.H.T.O STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGN, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2001 INCLUDING INTERMS UP TO 2006.

STAINLESS STEEL U-BOLT NOTE:

UNLESS OTHERWISE NOTED ON THE PLAN, ALL STAINLESS STEEL U-BOLTS SHALL BE FURNISHED WITH STAINLESS STEEL REGULAR HEXAGONAL NUTS, JAM NUTS AND WASHERS UNDER BOTH HEADS AND NUTS. STAINLESS STEEL U-BOLTS SHALL MEET REQUIREMENTS OF ASTM A320, TYPE 304 OR ASTM F593 GROUP 1, 2, OR 3 CONDITION A.

STEEL NOTES:

STEEL SHAPES FOR D.M.S. CONNECTION DETAIL SHALL COMPLY WITH ASTM A572 GRADE 50, ALL OTHER STEEL SHAPES SHALL MEET THE REQUIREMENTS OF ASTM A36. ALL STEEL BARS, AND PLATES SHALL COMPLY WITH ASTM A36 EXCEPT MINOR PARTS APPROVED BY THE ENGINEER MAY COMPLY WITH ASTM A575 GRADE M1020. THE METAL BAR GRATING INCLUDING BEARING BAR, CROSS BAR, AND BANDING BARS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A1011 TYPE 2. ALL STEEL PIPE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A53 GRADE B, TYPE E OR S. STAINLESS STEEL BOLTS SHALL COMPLY WITH ASTM A320 OR F592 AS PER STANDARD SPECIFICATIONS.

ALL STEEL SECTIONS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. PROVIDE VENT HOLES FOR GALVANIZING.

STEEL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AWS SPECIFICATIONS D1.1, STRUCTURAL WELDING CODE-STEEL.

MAGNETIC PARTICLE TESTING SHALL BE PREFORMED ON THE POST TO BASE PLATE AND STIFFENER FILLET WELDS.

SPECIFICATIONS:

DESIGN: A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2001 INCLUDING INTERMS UP TO 2006; STATE STANDARD FATIGUE DESIGN. AMERICAN INSTITUTE OF STEEL CONSTRUCTION, THIRTEENTH EDTION.

CONSTRUCTION: IOWA D.O.T. STANDARD SPECIFICATIONS, SERIES 2001 PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

GENERAL NOTES:

ALL TRUSSES ARE DESIGNED FOR 30 lb/ft^2 WIND PRESSURE ON TRUSS MEMBERS AND 40 lb/ft^2 ON DMS. THE DMS IS LIMITED TO 4000 LBS. AND A WIDTH OF 29'-3, A HEIGHT OF 7'-10, AND A DEPTH OF 3'-11.

ALL PIPES, SHAPES, AND PLATES SHALL BE STRUCTURAL STEEL COMPLYING WITH THE ASTM SPECIFICATIONS NOTED.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW.

SHOP DRAWINGS SHALL INDICATE LEFT AND RIGHT SUPPORTS.

THE PRECISE ALIGNING AND ERECTING OF ALL COMPONENTS OF THE OVERHEAD SIGN TRUSS AND ITS SUPPORTS SHALL BE CONSIDERED ESSENTIAL. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER SHOWING THAT THE VARIOUS COMPONENTS HAVE BEEN MEASURED AND ARE LOCATED WITHIN THE TOLERANCES LISTED BELOW.

FOUNDATIONS AND ANCHOR BOLTS:

1) EACH FOUNDATION SHALL BE ACCURATELY LOCATED, WITH THE CENTER OF THE TWO ANCHOR BOLT GROUPS NOT MORE THAN 1 INCH FROM THE PLAN LOCATION IN THE DIRECTION PARALLEL WITH AND PERPENDICULAR TO THE OVERHEAD TRUSS.

2) THE TWO FOUNDATIONS SHALL BE PARALLEL, WITH THE DISTANCES ALONG THE OVERHEAD TRUSS BETWEEN CENTERS OF FRONT AND REAR ANCHOR BOLT GROUPS DIFFERING BY NOT MORE THAN 1 INCH.

3) ELEVATIONS OF THE TOP OF EACH FOUNDATION SHALL BE WITHIN 1 INCH OF PLAN ELEVATION.

4) ANCHOR BOLT GROUPS SHALL BE LOCATED ACCURATELY BY TEMPLATE OR OTHER POSITIVE MEANS, WITH CENTERS OF ADJACENT ANCHOR BOLT GROUPS WITHIN $\frac{3}{16}$ INCH OF THE CORRECT DISTANCE APART.

5) ANCHOR BOLTS SHALL BE PLUMB WITHIN $\frac{1}{4}$ INCH PER FOOT FROM VERTICAL.

6) ANCHOR BOLTS SHALL PROJECT ABOVE TOP OF FOUNDATION WITHIN $\frac{1}{4}$ INCH OF THE PLAN DIMENSION.

7) WELDING OF ANCHOR BOLTS SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL OBTAIN A TEMPLATE FROM THE MANUFACTURER / FABRICATOR FOR PROPER PLACEMENT OF THE ANCHOR BOLTS.

COMPLETED STEEL STRUCTURE:

1) EACH TRUSS SUPPORT COLUMN SHALL BE PLUMB WITHIN $\frac{1}{16}$ INCH PER FOOT OF VERTICAL IN TWO PERPENDICULAR DIRECTIONS.

2) STICK-OUT OF EACH TRUSS LOWER CHORD SHALL BE WITHIN $2\frac{3}{4}$ AND $5\frac{1}{2}$ INCHES MEASURED FROM OUTER U-BOLT TO INSIDE OF CHORD END PLATE.

3) THE TRUSS SHALL BE SQUARE WITHIN SUPPORTS. HORIZONTAL LINE BETWEEN CHORDS SHALL BE LEVEL WITHIN $\frac{1}{16}$ INCH PER FOOT OF HORIZONTAL, AND VERTICAL LINE BETWEEN CHORDS SHALL BE PLUMB WITHIN $\frac{1}{16}$ INCH PER FOOT OF VERTICAL.

DESIGN FOR

GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

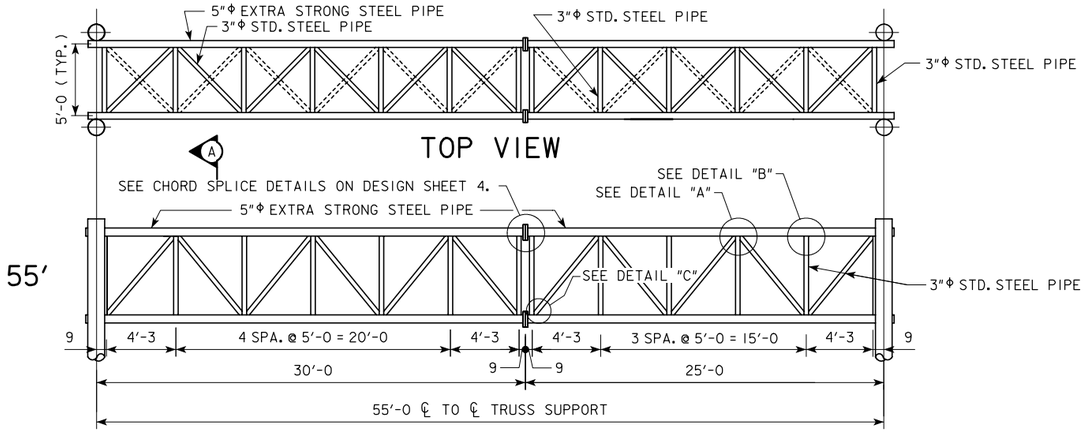
GENERAL NOTES

STA. 2343+90 FEBRUARY, 2010

DUBUQUE COUNTY

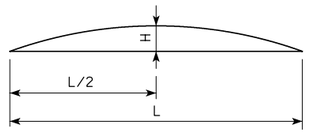
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 10 FILE NO. 30504 DESIGN NO. 210

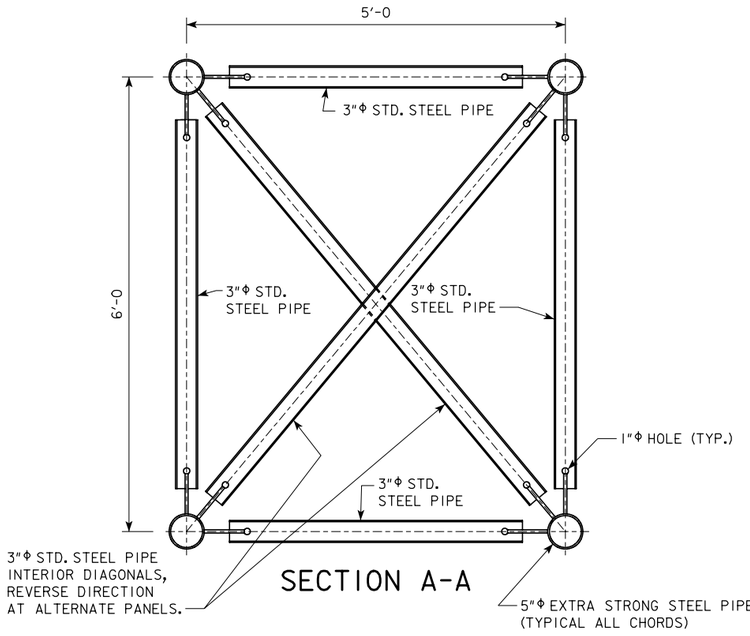


PART ELEVATION

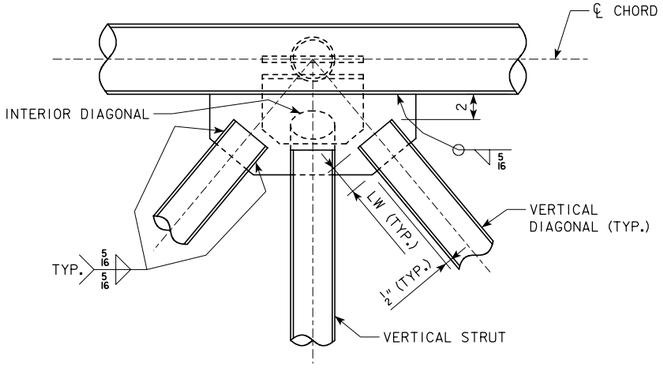
SPAN L	CAMBER H
55'	7/8



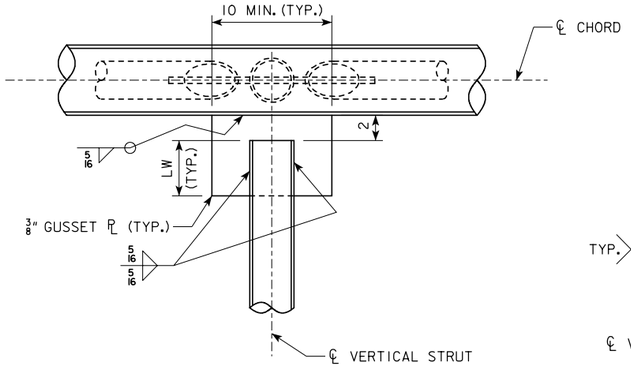
CAMBER DIAGRAM



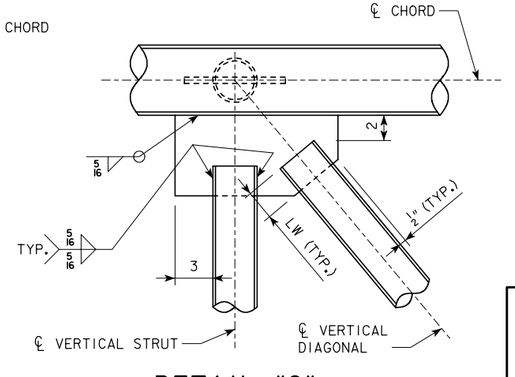
SECTION A-A



DETAIL "A"
FOR 3"Φ STD. STEEL PIPE
LW (MIN.) = 3 1/2"



DETAIL "B"
FOR 3"Φ STD. STEEL PIPE
LW (MIN.) = 3 1/2"



DETAIL "C"
FOR 3"Φ STD. STEEL PIPE
LW (MIN.) = 3 1/2"

DESIGN FOR

GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

ELEVATION VIEWS

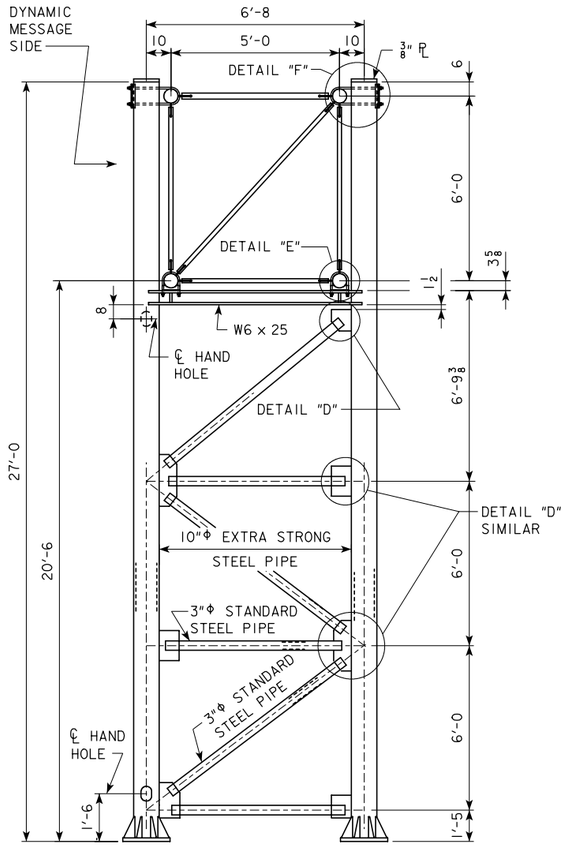
STA. 2343+90 FEBRUARY, 2010

DUBUQUE COUNTY

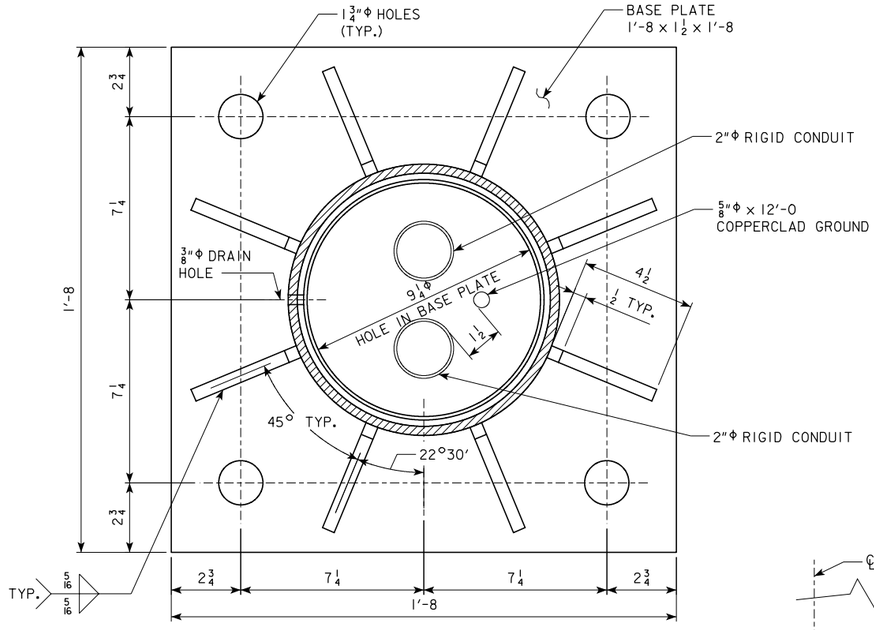
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 10 FILE NO. 30504 DESIGN NO. 210

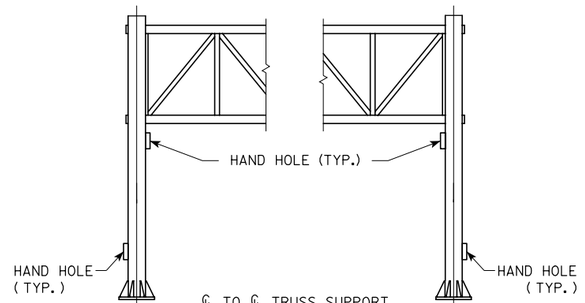
DESIGN TEAM JRH / JDC / HLA | DUBUQUE COUNTY | PROJECT NUMBER ITS-000-S(406)--25-31 | SHEET NUMBER V.7



END VIEW OF TRUSS SUPPORT

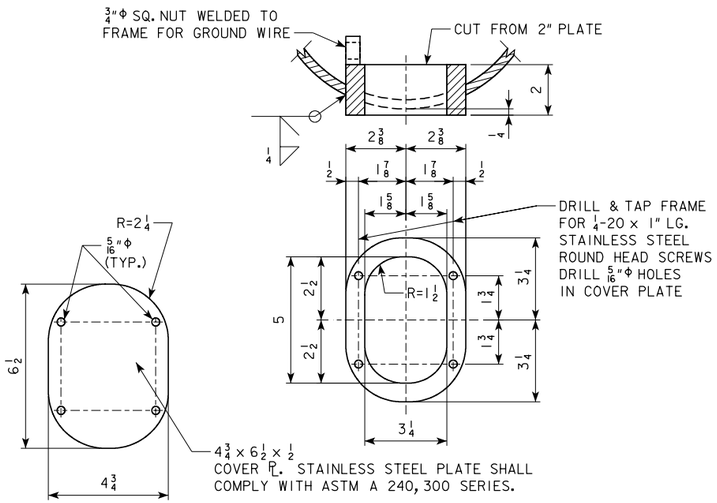


BASE PLATE PLAN

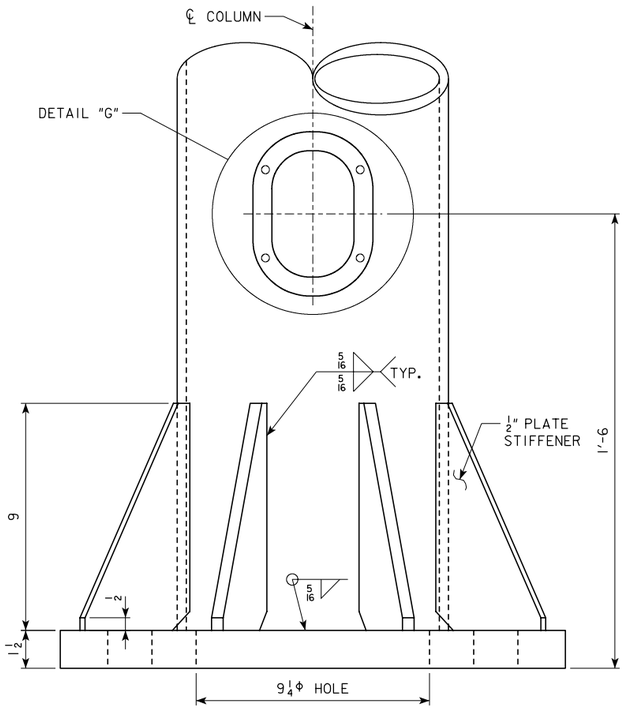


PART ELEVATION

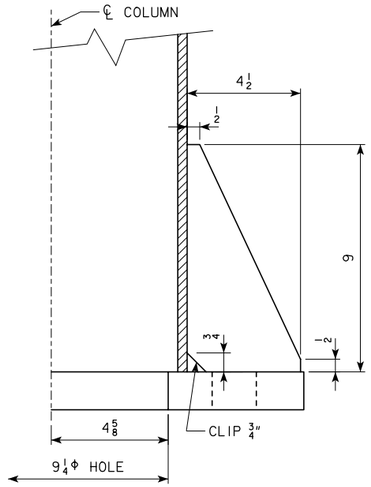
NOTE: HAND HOLES SHALL BE IN BOTH END TRUSS SUPPORTS AND ON DYNAMIC MESSAGE SIDE ONLY.



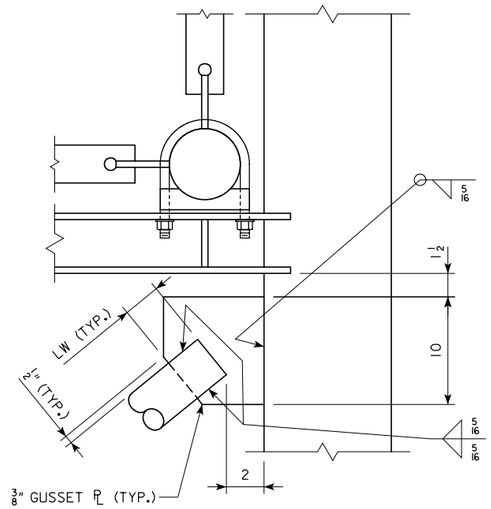
DETAIL "G"



BASE SIDE VIEW



BASE CROSS-SECTION



DETAIL "D"

FOR 3"Φ STD. STEEL PIPE LW (MIN.) = 3 1/2"

NOTE: SEE DESIGN SHEET 4 FOR DETAILS "E" & "F".

DESIGN FOR

GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

BASE PLATE DETAILS

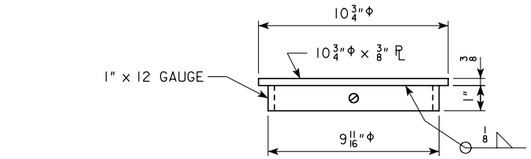
STA. 2343+90 FEBRUARY, 2010

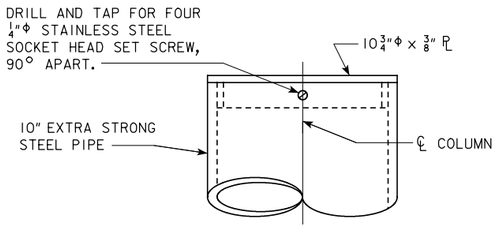
DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

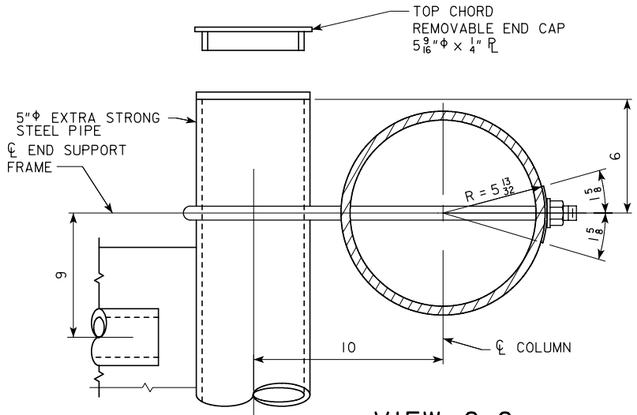
DESIGN SHEET NO. 3 OF 10 FILE NO. 30504 DESIGN NO. 210

DESIGN TEAM JRH / JDC / HLA | DUBUQUE COUNTY | PROJECT NUMBER ITS-000-S(406)--25-31 | SHEET NUMBER V.8

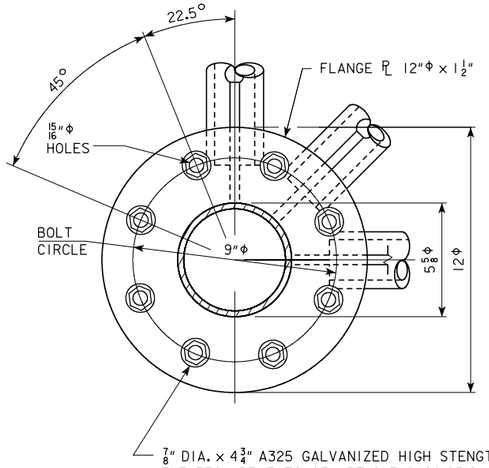


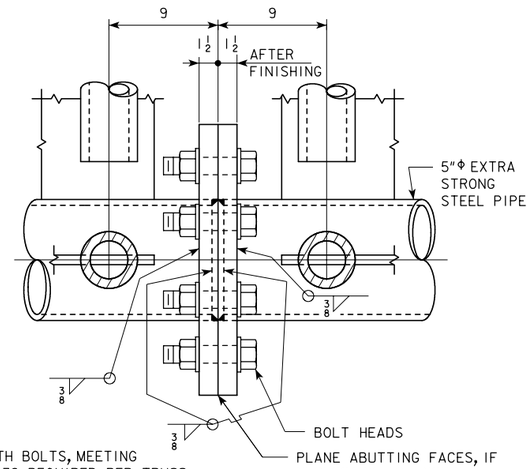


END COLUMN TOP DETAIL



VIEW C-C

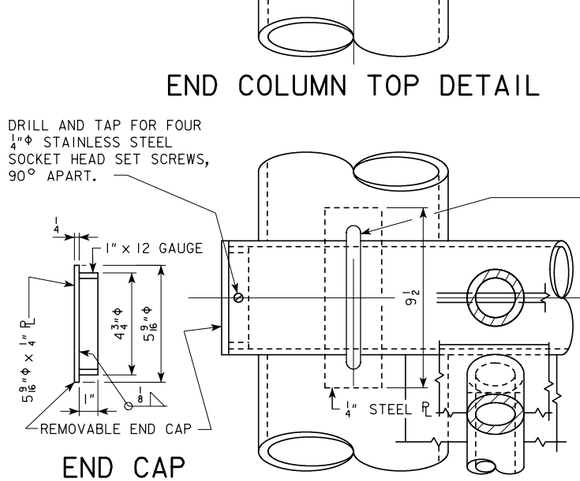




7/8" DIA. x 4 3/4" A325 GALVANIZED HIGH STENGTH BOLTS, MEETING THE REQUIREMENTS OF ARTICLE 2408.03,S. 32 REQUIRED PER TRUSS SPLICE, 64 HARDENED WASHERS REQUIRED PER TRUSS SPLICE. HARDENED WASHER WILL BE PROVIDED UNDER BOTH HEAD AND NUT OF BOLT 32 - 7/8" DIA. HEAVY HEX NUTS REQUIRED PER TRUSS SPLICE. DRILL 8 - 15/16" DIA. HOLES IN EACH FLANGE. HIGH STRENGTH BOLT SHALL BE TENSIONED BY TURN-OF-NUT METHOD.

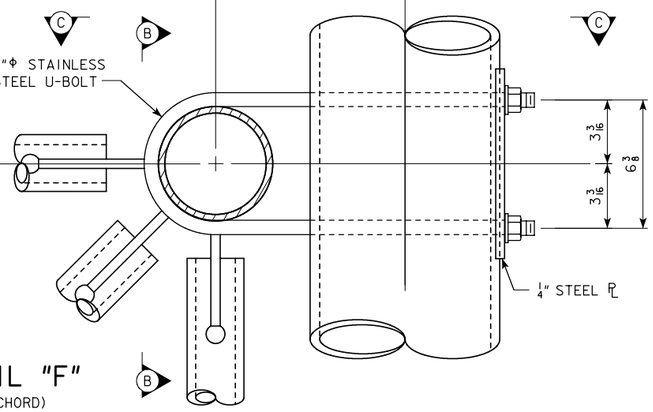
CHORD SPLICE

NOTE:
FLANGES MAY BE WELDED TO CHORD MEMBERS AFTER FINISHING PROVIDED PROPER ALIGNMENT IS SECURED.

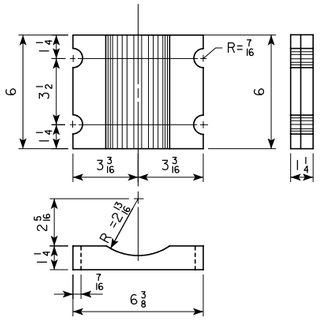


END CAP

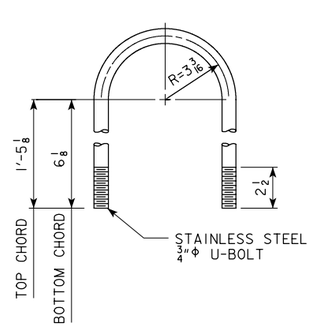
VIEW B-B



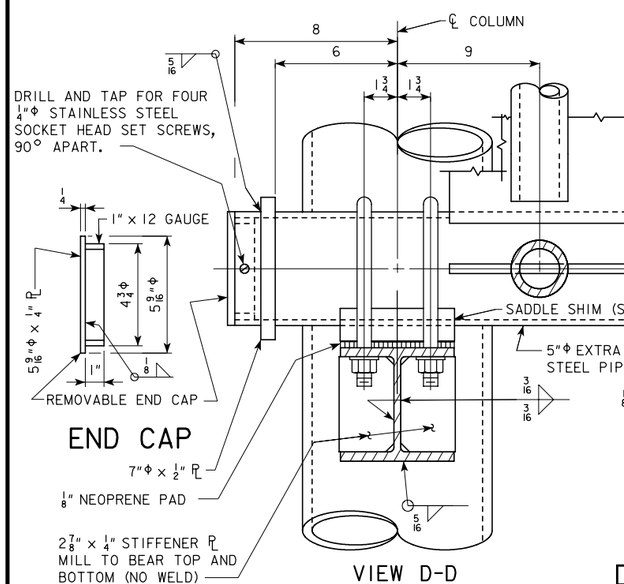
DETAIL "F"
(TOP CHORD)



SADDLE SHIM DETAIL

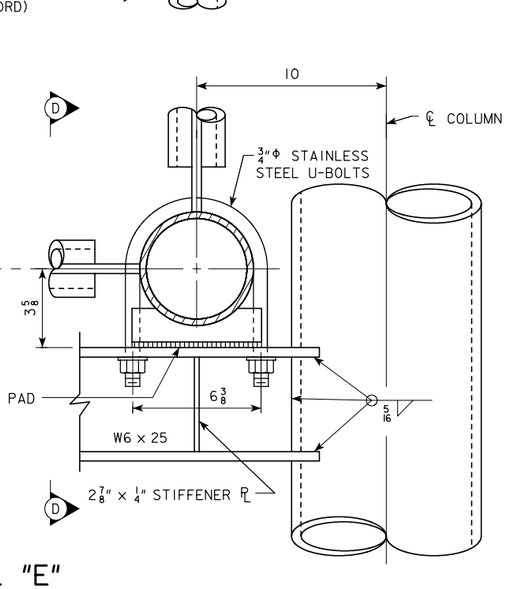


STAINLESS STEEL U-BOLT DETAIL



END CAP

VIEW D-D



DETAIL "E"
(BOTTOM CHORD)

NOTE: SEE DESIGN SHEET 3 FOR LOCATION OF DETAILS "E" & "F".

DESIGN FOR
GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

TRUSS SUPPORT & CHORD SPLICE DETAILS

STA. 2343+90 FEBRUARY, 2010

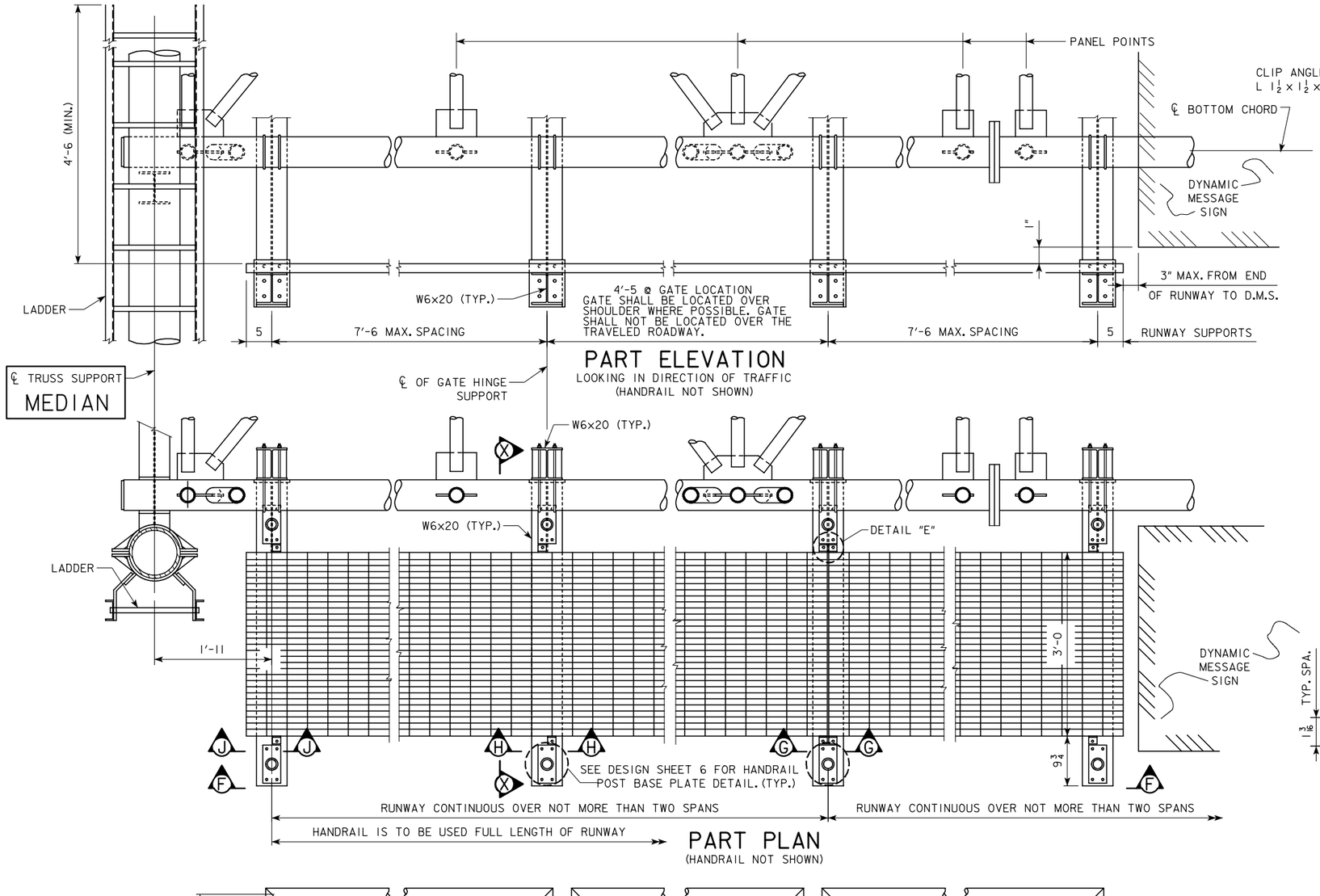
DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 10 FILE NO. 30504 DESIGN NO. 210

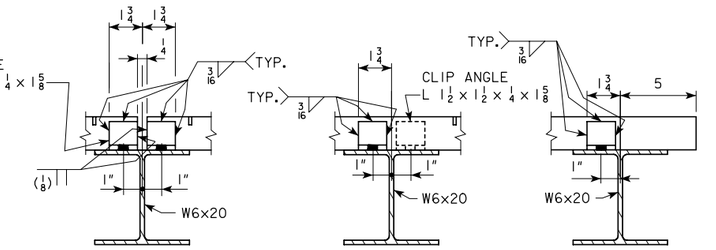
DESIGN TEAM JRH / JDC / HLA | DUBUQUE COUNTY | PROJECT NUMBER ITS-000-S(406)--25-31 | SHEET NUMBER V.9

23-FEB-2010 09:22 jcolle W:\Projects\0307601010\BRFinal\03076406.brg 310210s004 \\ntpprtsvr2\BrgPDF



PART ELEVATION
LOOKING IN DIRECTION OF TRAFFIC
(HANDRAIL NOT SHOWN)

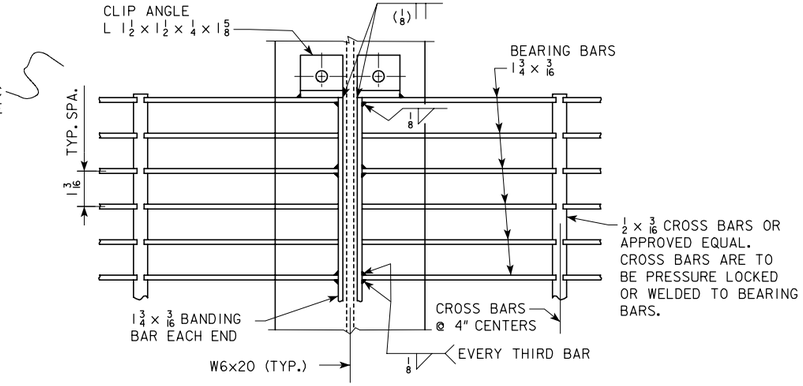
PART PLAN
(HANDRAIL NOT SHOWN)



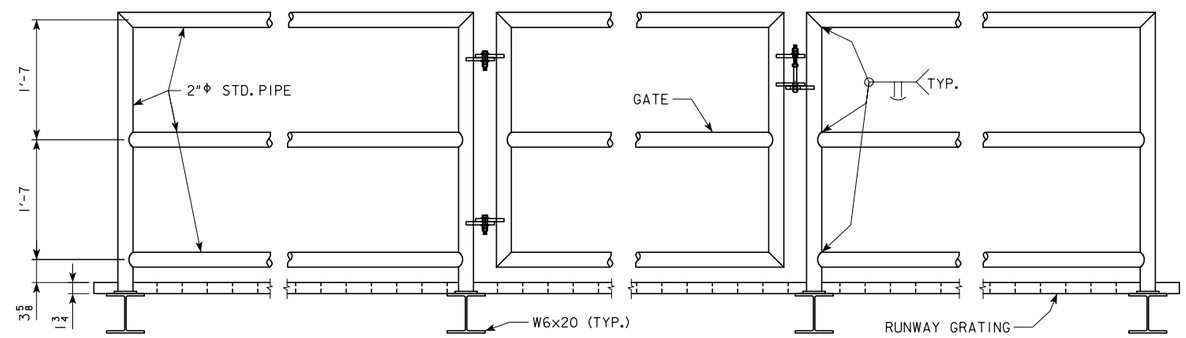
SECTION G-G SECTION H-H SECTION J-J

NOTE:
7/16"Φ HOLE IN CLIP ANGLE AND 7/16"Φ HOLE IN W6x20 FOR 3/8"Φ GALVANIZED A325 BOLT. ADJUST CLIP SO GRATING BEARS ON BEAM.

NOTE:
THE GALVANIZED METAL BAR GRATING INCLUDING BEARING BAR, CROSS BARS, AND BANDING BARS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A1011 TYPE 2.



DETAIL "E"



VIEW F-F
(SHOWING HANDRAIL AND GATE DETAILS)
(GATE IS LOCATED ON SIDE FARTHEST FROM TRUSS ONLY)

NOTES:
SEE DESIGN SHEET 6 FOR SECTION X-X.
SEE DESIGN SHEET 7 FOR LADDER DETAILS.

DESIGN FOR
GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

RUNWAY DETAILS

STA. 2343+90 FEBRUARY, 2010

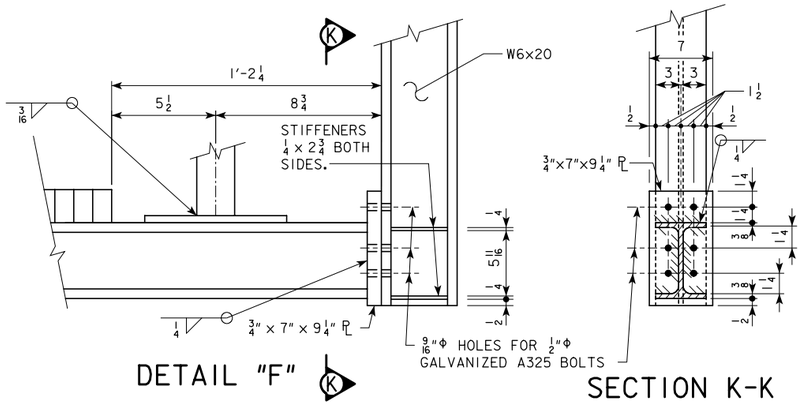
DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 10 FILE NO. 30504 DESIGN NO. 210

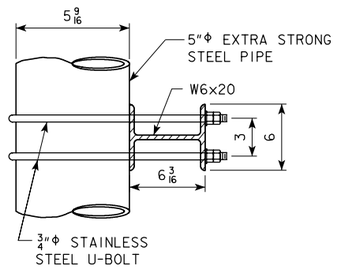
DESIGN TEAM JRH / JDC / HLA	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER V.10

23-FEB-2010 09:22 jcolle W:\Projects\0307601010\BRFinal\03076406.brg 310210s005 \\ntpprtsvr2\BrgPDF

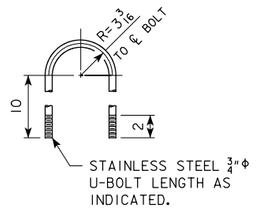


DETAIL "F"

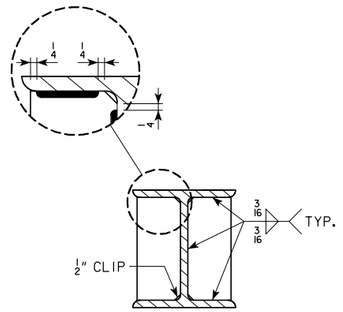
SECTION K-K



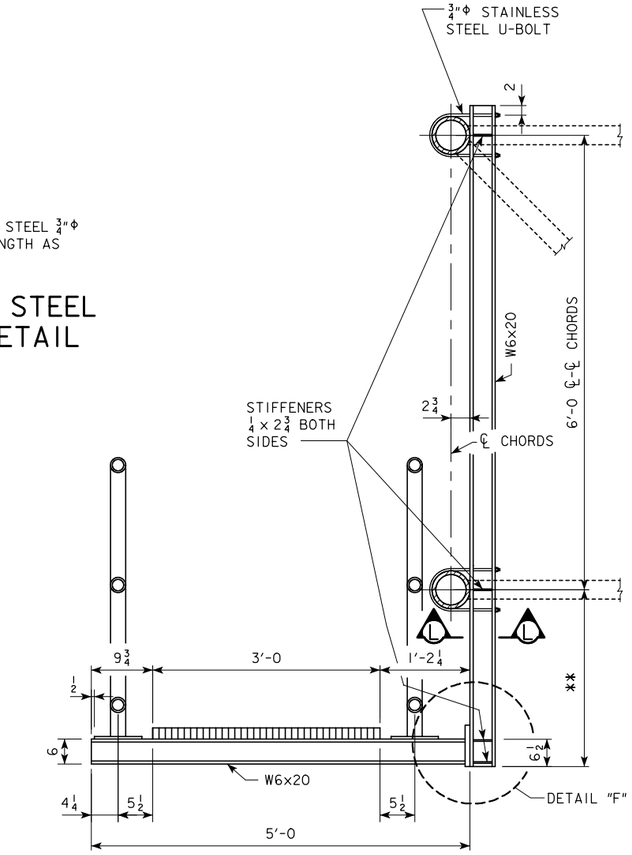
SECTION L-L



STAINLESS STEEL U-BOLT DETAIL

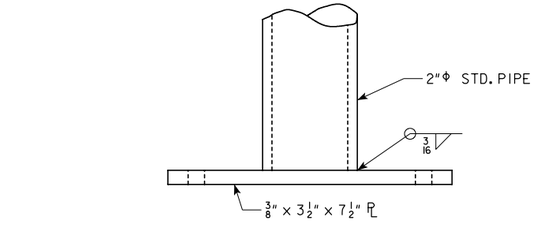


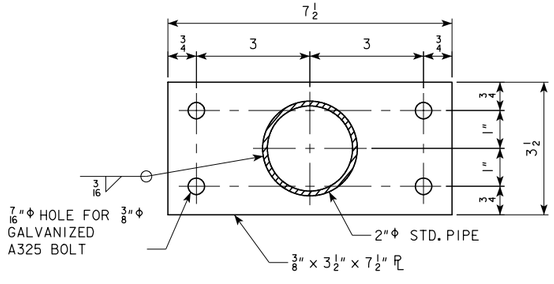
TYPICAL STIFFENER DETAIL



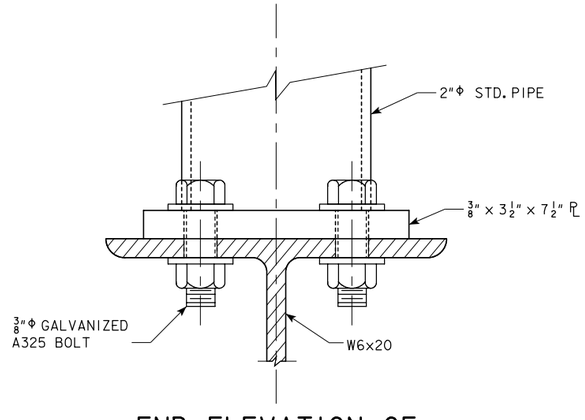
SECTION X-X
TYPICAL RUNWAY SECTION

** THE IOWA D.O.T. RESEARCH AND TECHNOLOGY BUREAU SHALL PROVIDE THIS DIMENSION AFTER YEAR 6 PURCHASE AGREEMENT FOR DYNAMIC MESSAGE SIGNS IS CONTRACTED AND ATTACHMENT HARDWARE DESIGNED. THE DIMENSION SHALL BE APPROVED BY THE IOWA D.O.T. OFFICE OF BRIDGES AND STRUCTURES.





HANDRAIL POST BASE PLATE



END ELEVATION OF HANDRAIL POST BASE

DESIGN FOR
GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

RUNWAY DETAILS

STA. 2343+90 FEBRUARY, 2010

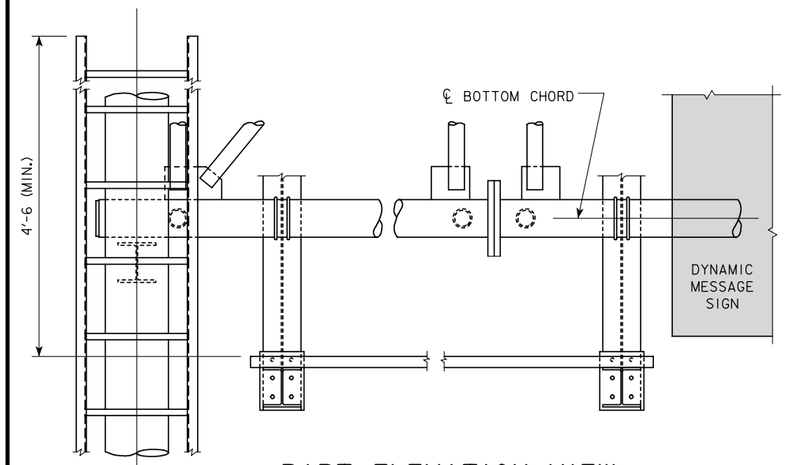
DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

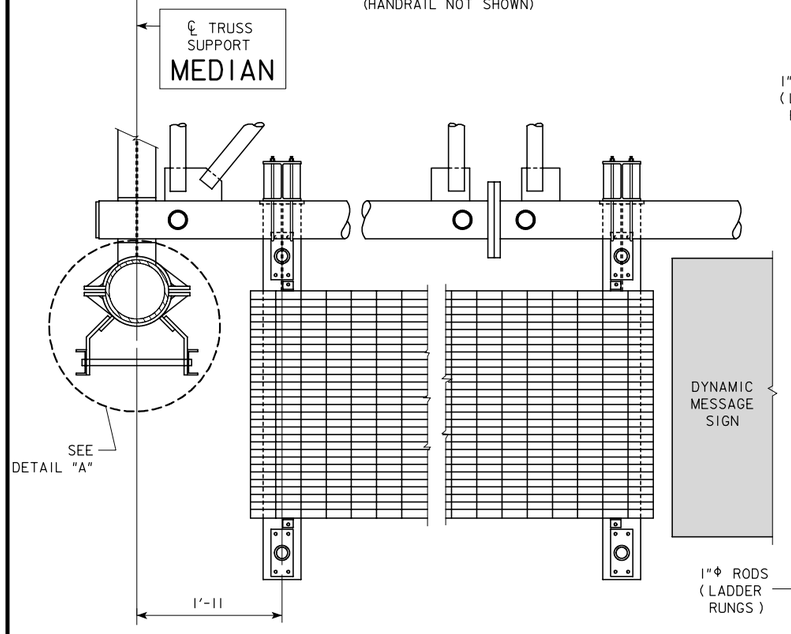
DESIGN SHEET NO. 6 OF 10 FILE NO. 30504 DESIGN NO. 210

DESIGN TEAM JRH / JDC / HLA | DUBUQUE COUNTY | PROJECT NUMBER ITS-000-S(406)--25-31 | SHEET NUMBER V.11

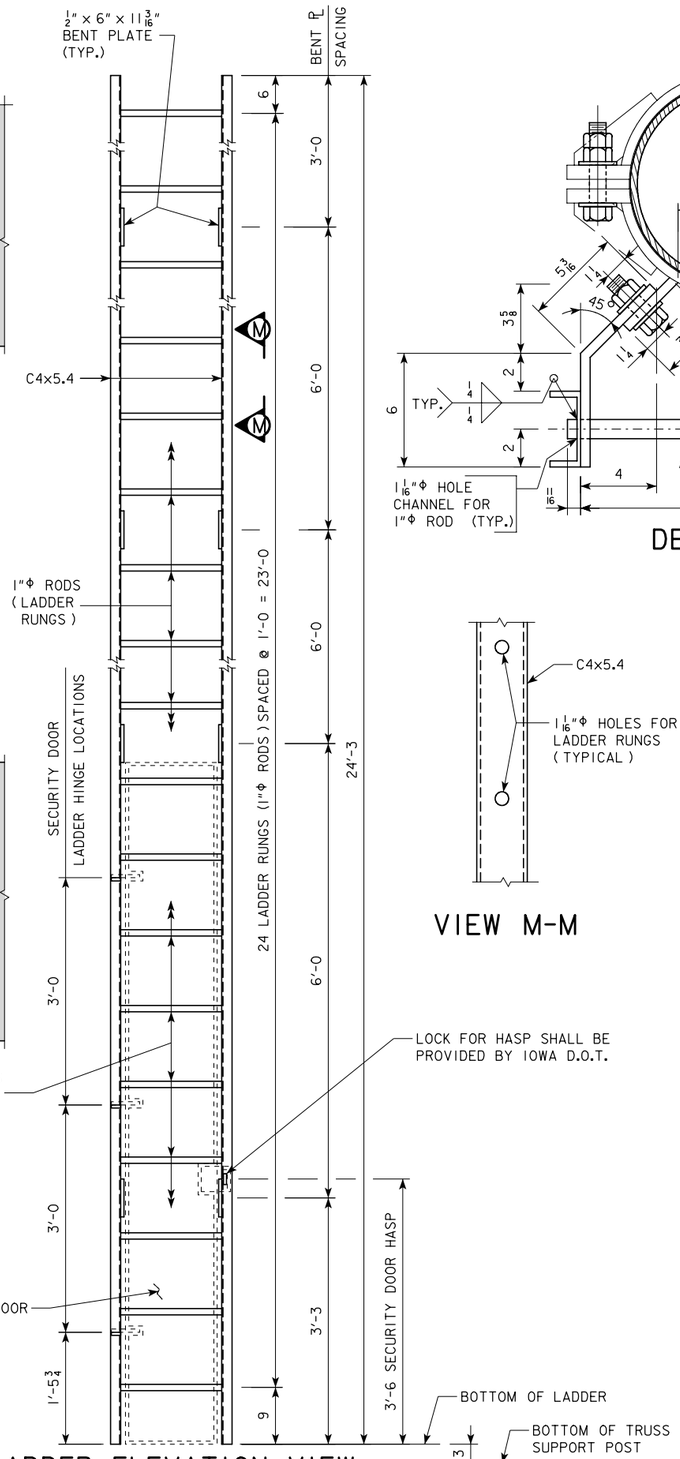
23-FEB-2010 09:22 jcolle W:\Projects\0307601010\BRFinal\03076406.brg 310210s006 \\ntpprtsvr2\BrgPDF



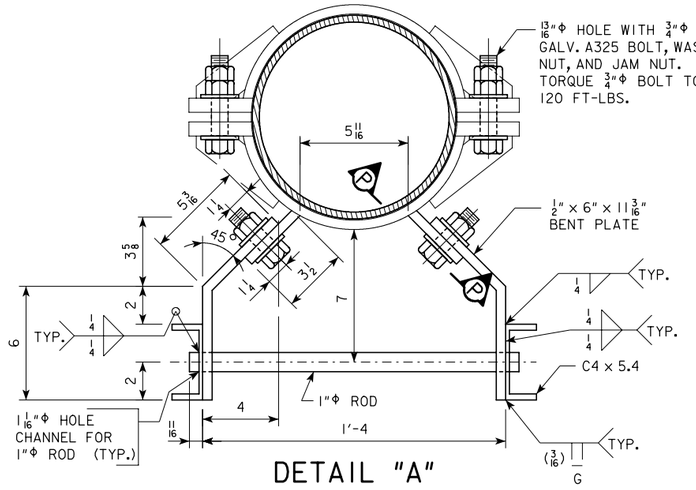
PART ELEVATION VIEW
(HANDRAIL NOT SHOWN)



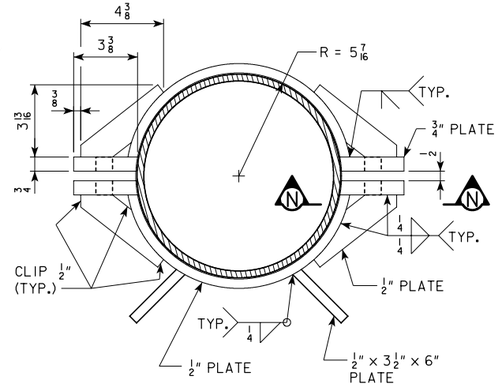
PART PLAN VIEW
(HANDRAIL NOT SHOWN)



LADDER ELEVATION VIEW
(CLAMP ASSEMBLY NOT SHOWN)

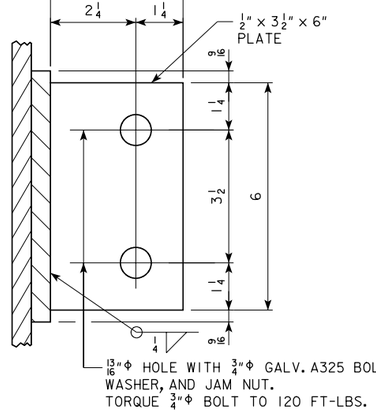


DETAIL "A"

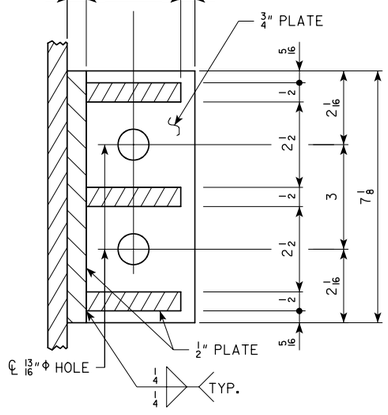


CLAMP ASSEMBLY
(3 REQUIRED PER LADDER)

VIEW M-M



SECTION P-P



SECTION N-N

NOTE: SEE DESIGN SHEET 8 FOR LADDER SECURITY DOOR DETAILS.

DESIGN FOR
GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

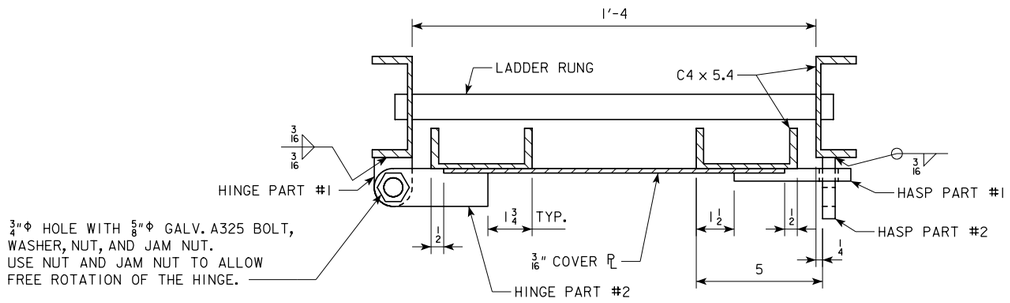
LADDER DETAILS

STA. 2343+90 FEBRUARY, 2010

DUBUQUE COUNTY

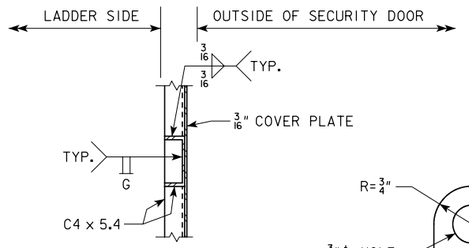
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 10 FILE NO. 30504 DESIGN NO. 210

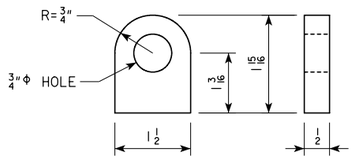


SECTION A-A

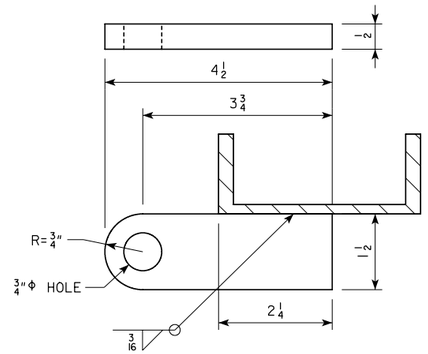
(4X SCALE TO SHOW DETAILS)



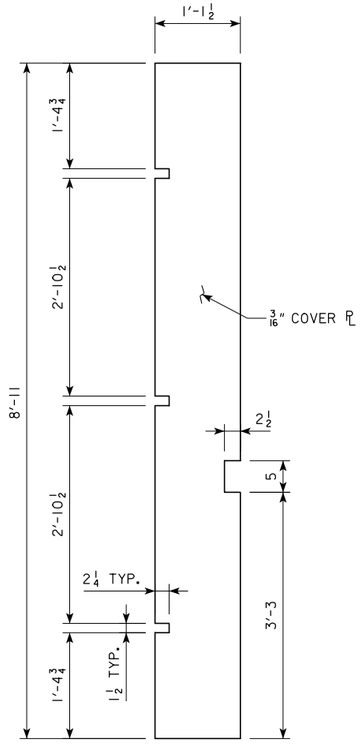
SECTION B-B



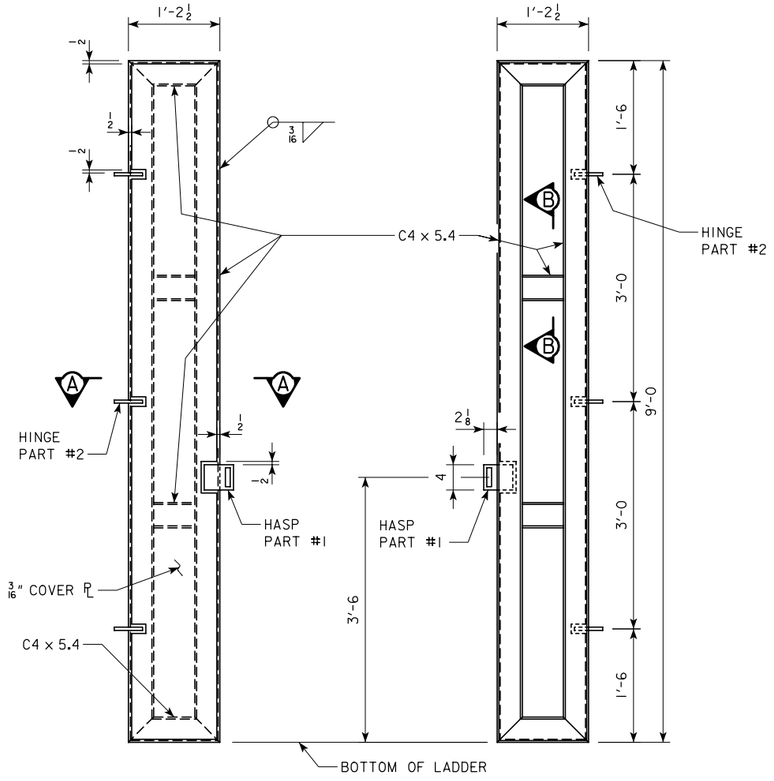
HINGE PART #1



HINGE PART #2



3/16" COVER PL DETAIL

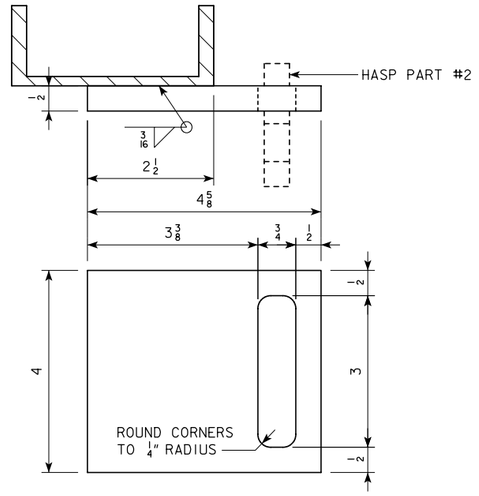


SECURITY DOOR ELEV.

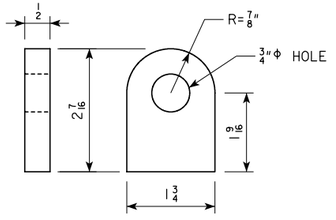
FRONT SIDE OF DOOR

SECURITY DOOR ELEV.

BACK (LADDER) SIDE OF DOOR



HASP PART #1



HASP PART #2

DESIGN FOR

GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

LADDER SECURITY DOOR DETAILS

STA. 2343+90 FEBRUARY, 2010

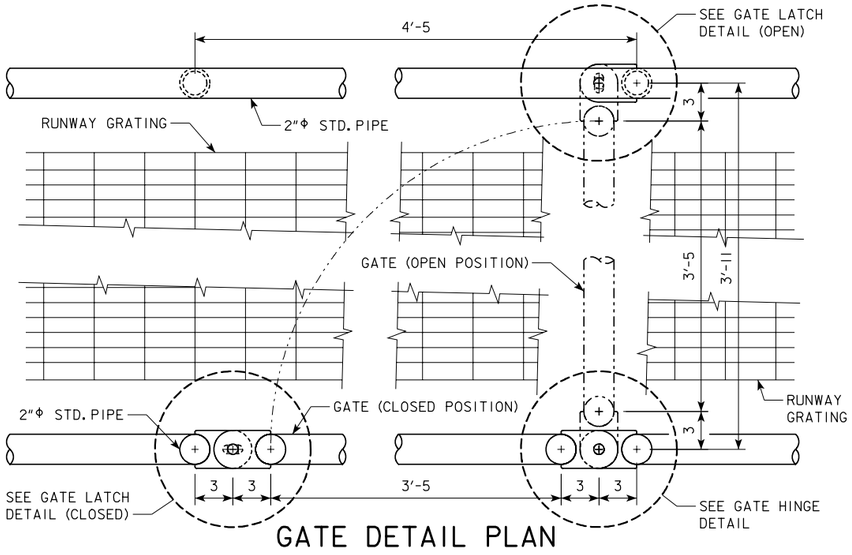
DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

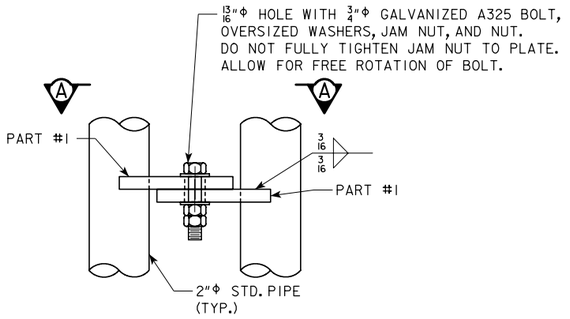
DESIGN SHEET NO. 8 OF 10 FILE NO. 30504 DESIGN NO. 210

DESIGN TEAM JRH / JDC / HLA | DUBUQUE COUNTY | PROJECT NUMBER ITS-000-S(406)--25-31 | SHEET NUMBER V.13

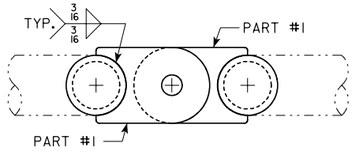
23-FEB-2010 09:22 jcolle W:\Projects\0307601010\BRFinal\03076406.brg 310210s008 \\ntpprtsvr2\BrgPDF



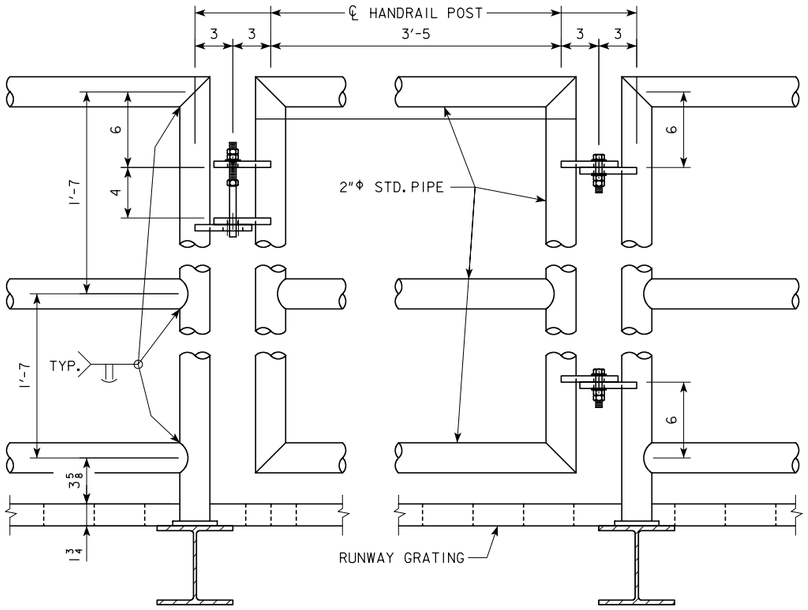
GATE DETAIL PLAN



GATE HINGE DETAIL

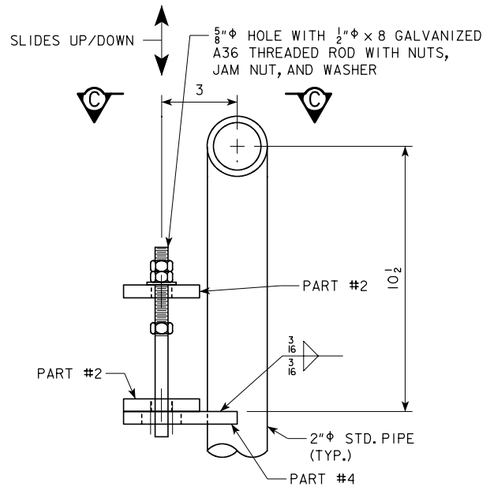


VIEW A-A

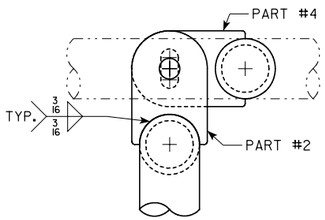


GATE DETAIL ELEVATION

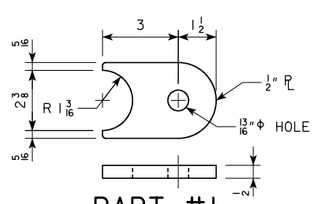
GATE LOCATED OVER
SHOULDER OF ROADWAY
AND OPENS TOWARDS LADDER



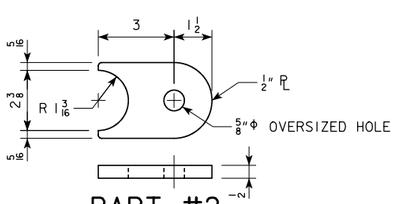
GATE LATCH DETAIL (OPEN)



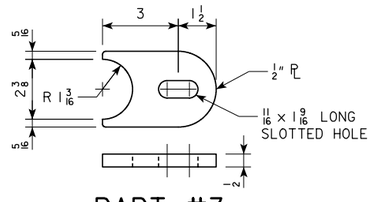
VIEW C-C



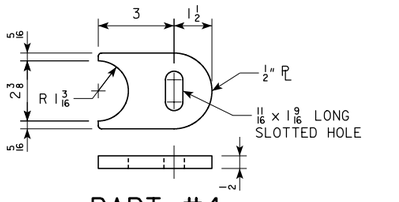
PART #1



PART #2



PART #3



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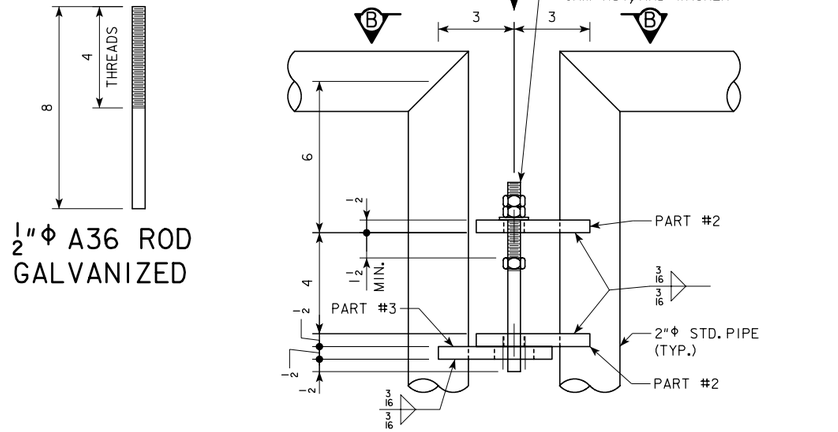
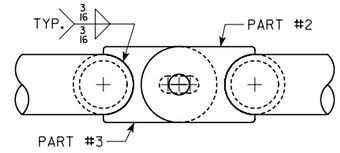


GATE LATCH DETAIL (CLOSED)



VIEW B-B

DESIGN FOR

GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

RUNWAY GATE DETAILS

STA. 2343+90 FEBRUARY, 2010

DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 10 FILE NO. 30504 DESIGN NO. 210

DESIGN TEAM JRH / JDC / HLA	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER V.14

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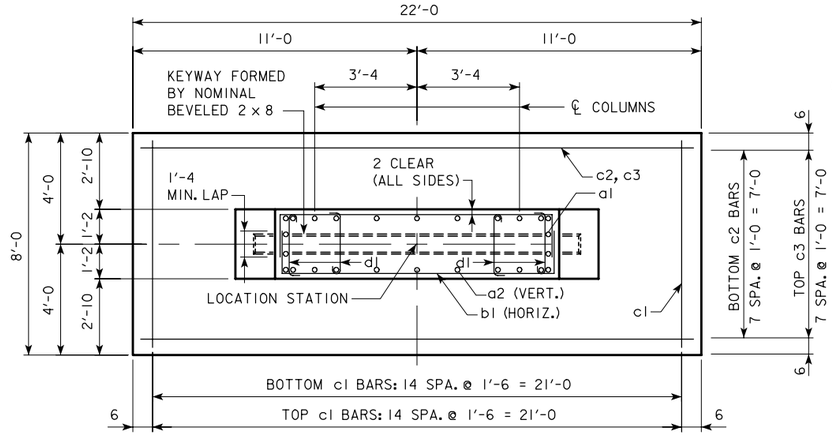
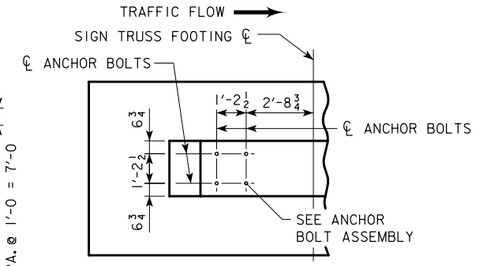
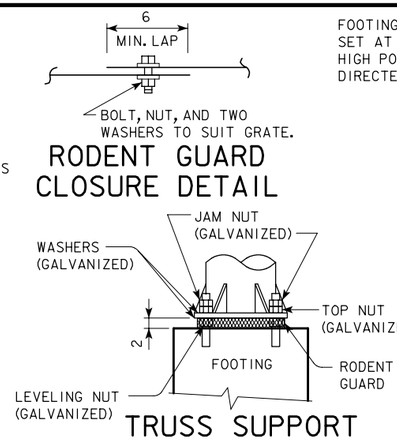


PLAN

(ANCHOR BOLT ASSEMBLIES NOT SHOWN.)

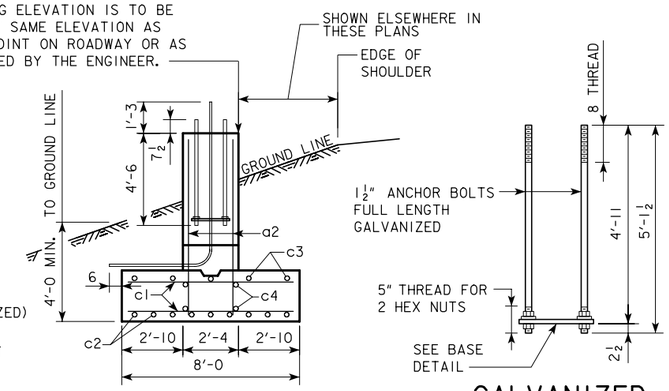


ANCHOR BOLT PLACEMENT DETAILS



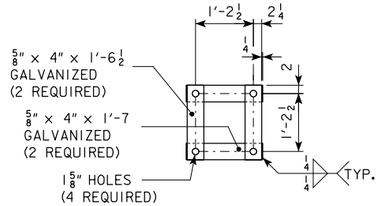
RODENT GUARD CLOSURE DETAIL

TRUSS SUPPORT CONNECTION DETAIL



END ELEVATION

GALVANIZED ANCHOR BOLT ASSEMBLY



GALVANIZED BASE DETAIL

GENERAL NOTES:

STRUCTURAL CONCRETE, CLASS C, SHALL BE USED FOR THE FOOTING.

EXCAVATION FOR FOOTING SHALL BE TO NEAT LINES AND CONCRETE SHALL BE PLACED AGAINST THE UNDISTURBED MATERIAL. ALL EXCAVATION FOR THE FOOTING SHALL BE DISPOSED OF IN THE AREA ADJACENT TO THE FOOTING AND SHAPED TO NORMAL GROUND CONTOUR, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MAXIMUM DESIGN BEARING CAPACITY IS 1.0 TONS PER SQUARE FOOT.

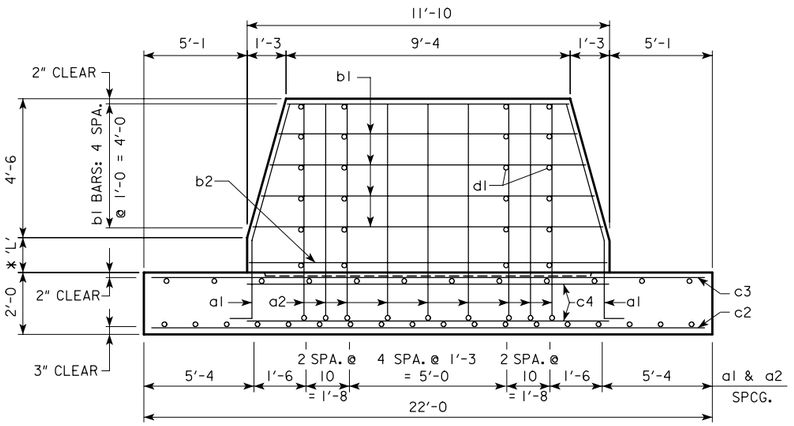
THE REQUIREMENTS PER FOOTING ARE TWO ANCHOR BOLT ASSEMBLIES INCLUDING SHIMS, NUTS (5 PER BOLT) AND WASHERS. REFER TO HARDWARE CLASSIFICATION TABLE FOR MATERIALS AND GALVANIZING REQUIREMENTS.

A RODENT GUARD SHALL BE PLACED BETWEEN THE CONCRETE FOOTING AND THE BASE PLATE, SEE MATERIALS I.M. 443.01.

PRICE BID FOR CONTRACT ITEMS SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY TO CONSTRUCT OVERHEAD SIGN FOOTING AS DETAILED HEREON. THE COST OF FURNISHING AND INSTALLING ANCHOR BOLT ASSEMBLIES, CONDUITS AND RODENT GUARD ARE TO BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL CONCRETE. CONTRACT ITEMS FOR OVERHEAD SIGN FOOTING CONSTRUCTION ARE:

- EPOXY COATED REINFORCING STEEL, POUNDS
- STRUCTURAL CONCRETE (MISCELLANEOUS), CUBIC YARDS
- EXCAVATION, CUBIC YARDS OF CLASS SPECIFIED

FOR FOOTINGS SUPPORTING SIGN TRUSSES WITH DYNAMIC MESSAGE SIGNS, PLACE 3/4" GROUND WIRE DUCT AND TWO 2" ACCESS DUCTS WITHIN THE ANCHOR BOLT CIRCLE CLOSEST TO THE DIRECTION OF THE APPROACHING TRAFFIC. EXTEND CONDUIT ENDS 6" PAST EDGE OF FOOTING ON SIDE AWAY FROM ROADWAY. LOCATION SHALL BE ON DETAIL PROJECT PLANS. ALL DUCTS SHALL MEET REQUIREMENTS FOR PLASTIC CONDUIT.



SIDE ELEVATION

(ANCHOR BOLT ASSEMBLIES NOT SHOWN.)

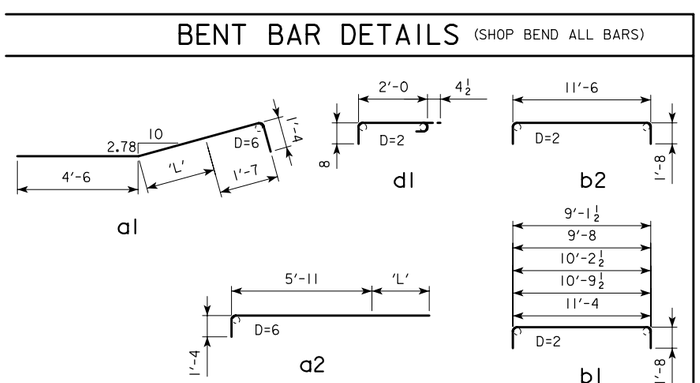
* 'L' SHALL NOT EXCEED 6'-0

CONCRETE PLACEMENT QUANTITIES

(ONE FOOTING)

ITEM	'L' = 0	EACH 1'-0 OF 'L'
WALL	4.12	1.02
FOOTING	13.04	
TOTAL (C.Y.)	17.16	1.02

BENT BAR DETAILS (SHOP BEND ALL BARS)



NOTE: ALL DIMENSIONS SHOWN ARE OUT TO OUT. D = PIN DIAMETER.

REINFORCING BAR LIST - EPOXY COATED

(ONE FOOTING)

	SIZE	SHAPE	'L' = 0 NO.	LENGTH	WEIGHT	SPACING	EACH 1'-0 OF 'L' NO.	LENGTH	WEIGHT
a1	8		8	7'-5	158	SEE DETAIL	8	1'-0 (A)	21
a2	8		18	7'-3	348	SEE DETAIL	18	1'-0 (A)	48
b1	4		10	Varies	91	1'-0	---	---	---
b2	4		---	---	---	---	2 (B)	14'-10	20
c1	6		30	7'-6	338	1'-6	---	---	---
c2	8		8	21'-6	459	1'-0	---	---	---
c3	6		8	21'-6	258	1'-0	---	---	---
c4	4		4	11'-10	32	SEE DETAIL	---	---	---
d1	4		20	3'-0 1/2	41	SEE DETAIL	4 (C)	3'-0 1/2	8
					TOTAL 1725 lbs				TOTAL 97 lbs

(A) ADDITIONAL LENGTH TO BAR a1 OR a2 FOR 'L' > 0

(B) TWO IN EACH 1'-0 OF 'L'.

(C) FOUR IN EACH 1'-0 OF 'L'.

DESIGN FOR

GALVANIZED OVERHEAD SIGN TRUSS WITH GALVANIZED STEEL SUPPORTS

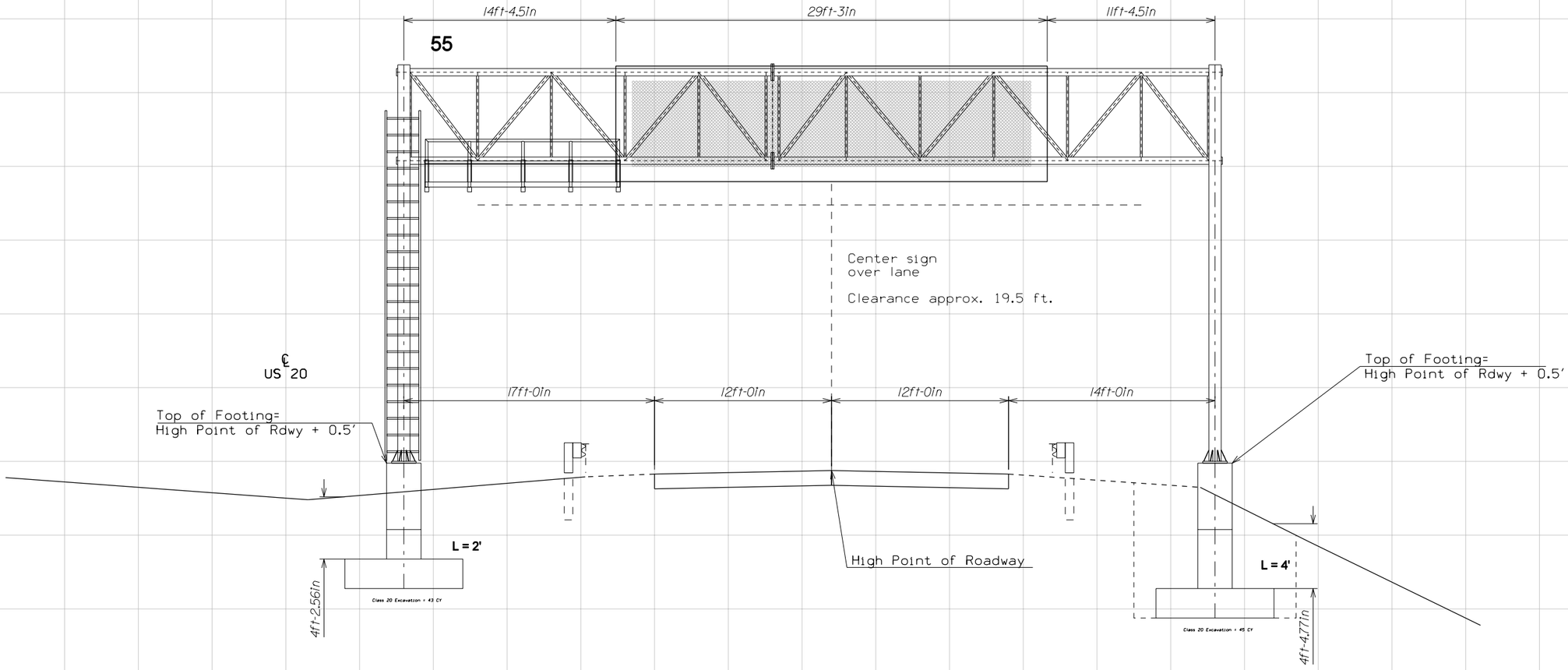
FOOTING DETAILS

STA. 2343+90 FEBRUARY, 2010

DUBUQUE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 10 FILE NO. 30504 DESIGN NO. 210



NOTES:

Cross section view is in direction of traffic (downstation)

Set footing elevation by by checking the highest point on the thru lanes, and adjusting the footing elevation accordingly.

20 10 0 10 20 30 40 50 60 70 80 90 10

STA 2343+90
PROPOSED 55' TRUSS

US 20 WESTBOUND
DUBUQUE COUNTY

DMS #109

IOWA DEPARTMENT OF TRANSPORTATION	OFFICE OF TRAFFIC & SAFETY	DESIGN TEAM NARIGON/JENSEN	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER X.01

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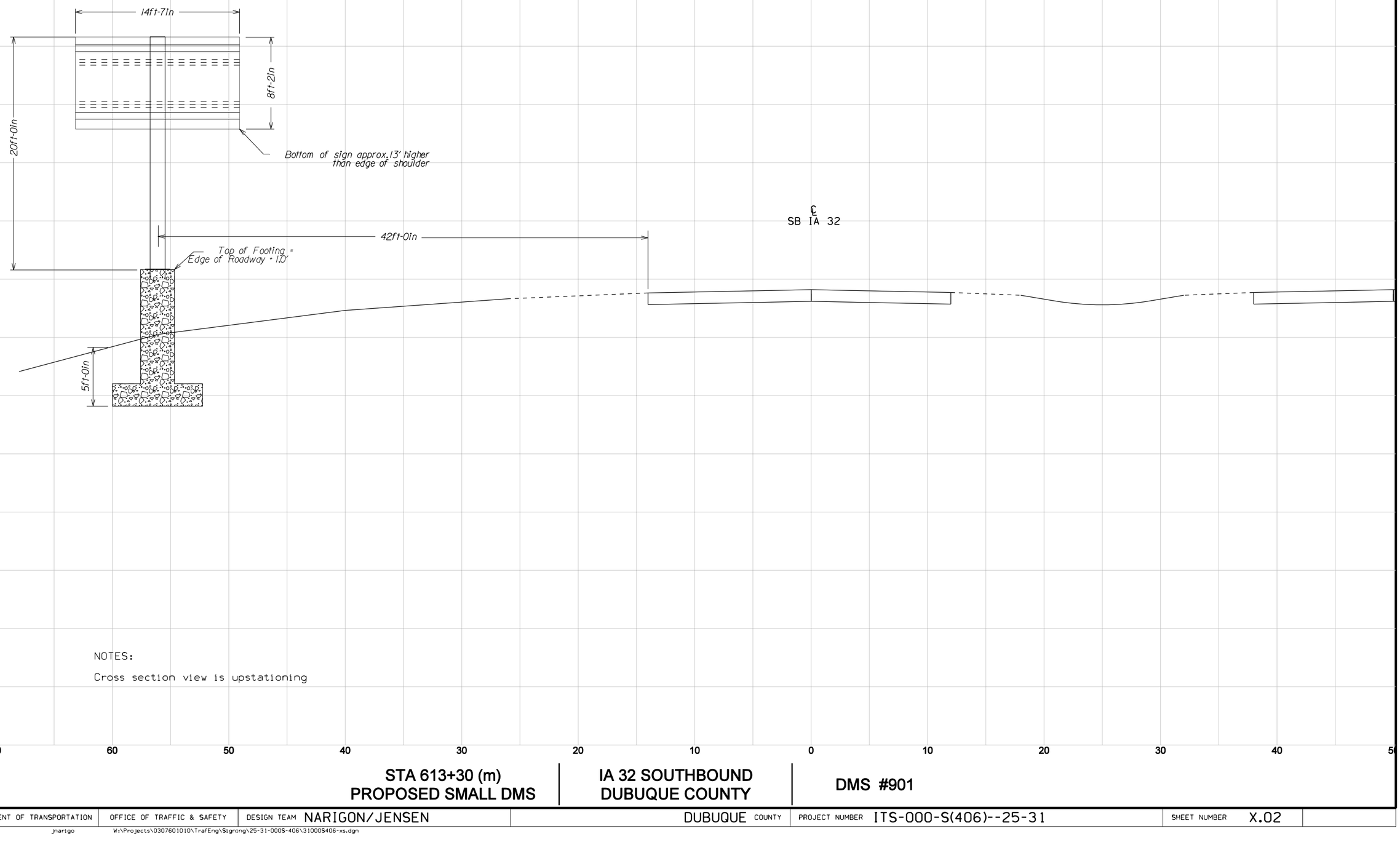


NOTES:

Cross section view is upstationing

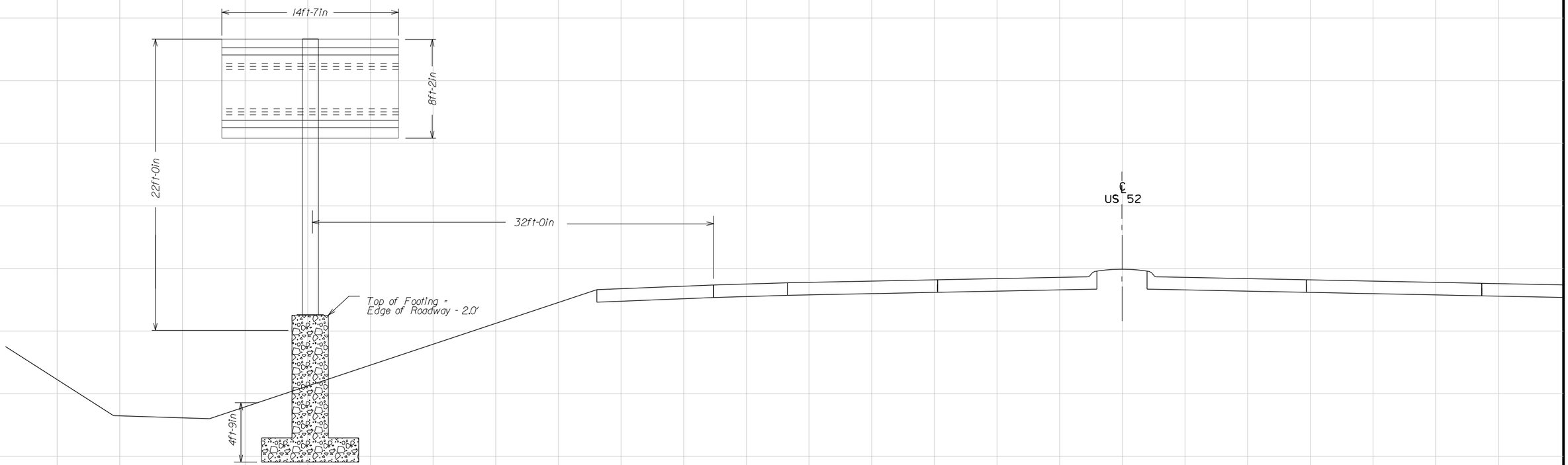
STA 613+30 (m)
PROPOSED SMALL DMS

IA 32 SOUTHBOUND
DUBUQUE COUNTY

DMS #901

IOWA DEPARTMENT OF TRANSPORTATION	OFFICE OF TRAFFIC & SAFETY	DESIGN TEAM NARIGON/JENSEN	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER X.02

4/12/2010 jnarigo W:\Projects\0307601010\TrafEng\Signing\25-31-000S-406\31000S406-xs.dgn



NOTES:

Cross section view is upstationing

STA 107+00
PROPOSED SMALL DMS

US 52 SOUTHBOUND
DUBUQUE COUNTY

DMS #902

IOWA DEPARTMENT OF TRANSPORTATION	OFFICE OF TRAFFIC & SAFETY	DESIGN TEAM NARIGON/JENSEN	DUBUQUE COUNTY	PROJECT NUMBER ITS-000-S(406)--25-31	SHEET NUMBER X.03

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